

Dredging Operations and Environmental Research Program

Soil Separation Mobile Treatment Plant Demonstration, Bayport Confined Disposal Facility, Green Bay, Wisconsin

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Soil Separation Mobile Treatment Plant Demonstration, Bayport Confined Disposal Facility, Green Bay, Wisconsin (ERDC/EL TR-02-38)

ISSUE: Confined disposal facilities (CDFs) have historically been used for disposal of both clean and contaminated dredged material from navigational dredging projects. Many CDFs are nearing capacity. Removal of uncomtaminated materials from the CDFs is a viable option for extending the life of these facilities. This approach carries the additional benefit of producing a marketable product for beneficial uses, which can potentially help to offset the cost of processing.

RESEARCH: The feasibility of physical separation as a volume reduction method has been demonstrated at several disposal facilities. A guidance document addressing principles of physical separation as they apply to soils and sediments, and identifying standard equipment, selection criteria, and potential sources was recently completed. Technical notes addressing recovery of materials from CDFs were also published under the Dredging Operations and Environmental Research (DOER) program. Work is ongoing at the U.S. Army Engineer Research and Development Center, funded under the DOER program, to develop bench-scale methods for economical preliminary feasibility evaluations.

SUMMARY: Preprocessing and separation equipment were tested in a one-day demonstration at Green Bay, WI. A 24-in. (0.6-m) maximum

density separator was used to separate sand from the bulk sediment. The target sand product specifications were less than 10 percent fines by mass and polychlorinated biphenyls (PCBs) concentrations less than 1 mg/kg. The underflow fraction averaged over 92 percent sand, as measured by a Coulter Counter. PCBs were reduced to 0.144 mg/kg PCB 1242 and 0.0119 mg/kg PCB 1260 in the sand, from 2.71 mg/kg and 0.145 mg/kg in the feed material, respectively. Based on statistical analysis of the results, the contaminant concentrations predicted for the sand fraction by the bench-scale testing were essentially equivalent to that achieved in the field operation. Distribution of metals was somewhat more variable than for PCBs, but metals were reduced by a factor of 2.6 to an order of magnitude in the sand fraction.

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Preface

This report summarizes the evaluation of a special hydrocyclone configuration (the maximum density separator) for physical separation of sediments, and corresponding efforts to develop simplified, representative, bench-scale procedures for preliminary testing. This project was jointly funded by the U.S. Environmental Protection Agency Great Lakes National Program Office (GLNPO), GLNPO Identification No. GL98079, IAG 14947887-01, and the U.S. Army Corps of Engineers Dredging Operations and Environmental Research (DOER) Program under Work Unit 0054PD.

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1 Introduction

Background

Confined disposal facilities (CDFs) have historically been used for disposal of both clean and contaminated dredged material from navigational dredging projects where open-water disposal was not permitted. Many CDFs are nearing capacity. Removal of uncontaminated materials from the CDFs is a viable option for extending the life of these facilities. This approach carries the additional benefit of producing a marketable product for beneficial uses, which can potentially help to offset the cost of processing. Use of CDFs as rehandling facilities, with long-term storage for only the most contaminated sediments, is being investigated by the U.S. Army Engineer Research and Development Center (ERDC), in partnership with the U.S. Army Engineer District, Detroit, the Great Lakes National Program Office (GLNPO) of the U.S. Environmental Protection Agency (USEPA), and local port authorities.

The feasibility of physical separation as a volume reduction method has been demonstrated at Saginaw Bay (USEPA 1994), the Erie Pier CDF, Duluth/ Superior Harbor (Olin and Bowman 1996) and Fort Myers, Florida (Granat 1998). Despite successful demonstrations at these locations and continued interest in the technology, physical separation has not yet been implemented as a standard operational practice, with the exception of the Erie Pier CDF. In part, this is due to the lack of internal expertise regarding physical separation and feasibility determinations, the cost of feasibility evaluations, and equipment availability.

A guidance document addressing principles of physical separation as they apply to soils and sediments, and identifying standard equipment, selection criteria, and potential sources was completed (USEPA 1999b). Technical notes addressing recovery of materials from CDFs were also completed under the Dredging Operations and Environmental Research (DOER) program (Olin-Estes and Palermo 2000a,b; Olin-Estes 2000). Work is ongoing at ERDC, funded under the DOER program, to develop bench-scale methods for economical preliminary feasibility evaluations. While bench-scale testing is a necessary first step, the limited volume of material that can be tested with these procedures cannot provide information regarding the potential heterogeneities of large quantities of material. Industry practice is to follow bench-scale testing with evaluation of an intermediate volume of material using a representative unit operation, such as a hydrocyclone. If these results are promising, a preliminary

treatment train is assembled and pilot-scale testing is conducted in the field. Costs to contract intermediate and pilot testing are typically high given that mobilization/demobilization and equipment costs are relatively insensitive to the volume being processed, and most vendors cannot accept contaminated sediments for pilot testing in-house. Availability of a mobile hydrocyclone unit could result in significant cost savings for feasibility evaluations and small-scale projects, and ultimately facilitate full-scale implementation of this technology. The long-term goal is assemble a mobile physical separation plant suitable for separation of sediments and dredged material to serve the Great Lakes CDFs.

Questions remaining to be addressed before full-scale implementation is feasible include the following:

- a. The degree of bulking of residual materials, with and without flocculants, and the short- and long-term effects on CDF capacity recovery.
- b. Alternatives for dewatering residual materials to minimize bulking effects, and their cost, effectiveness, and effect on suitability of residual materials for beneficial uses.
- c. The relative benefit and feasibility of making finer separations (silt/clay) to recover additional material from CDFs.
- d. Evaluation procedures for determining the potential contaminant levels in fine residuals and the effect on the regulatory classification of these materials.
- e. Development of cost/benefit algorithms incorporating all of these considerations for economic feasibility evaluations.

Project Objectives

Identification and purchase of a portable hydrocyclone unit suitable for conducting separation feasibility evaluations and a small-scale field demonstration was the principal objective of this project. While the predominant focus is coarse material recovery for beneficial use as beach nourishment and construction fill (typically requiring the material to contain less than 10-15 percent fines), some beneficial uses will accommodate higher percentages of fine material. The silt/clay separation is expected to be an important long-range objective in maximizing material recovery from CDFs for material in which the silt fraction is substantially less contaminated than the clay fraction. Separation capability at the sand/silt interface (approximately 75 microns) with the additional capability of a silt/clay separation (at 2-3 microns) were therefore the principal operating specifications. Additional criteria were (a) level of expertise required for operation, (b) auxiliary equipment required to support operation, and (c) material preparation required. The equipment may also be used to address other information gaps, as previously described.

Identification of Available Equipment Types and Vendors

A wide variety of equipment is marketed for size and density separations within the mining industry. However, the equipment is typically designed for coarser and higher density materials. Although there is a significant body of knowledge pertaining to the principles of operation of individual pieces of equipment, there is little guidance in developing a treatment train for processing soils and sediments. Fines, often termed slimes, are considered an operational problem in the mining industry, and are removed as a waste stream prior to making the principal separations. Contaminated sediment separations, however, involve making efficient separations near or within that "waste" fraction, and require the ability to handle and even recover the finest residuals. The condition of the materials presented to the plant will be highly variable, depending upon whether they are consolidated materials excavated from a CDF, or mechanically or hydraulically dredged sediments processed at the time of disposal. In situ water content may vary from 50 to 150 percent, presenting difficulty in handling and in processing through equipment designed for dry (less than 10 percent moisture content), or noncohesive, material. Previous testing of laboratory-scale mining equipment has demonstrated that the feed limitations are not always well defined, and the normal operating parameters may not interface well with the separations of interest for soils and sediments. Even among Architect/Engineer firms with experience in soil washing, assemblage of a treatment train appears to be something of an art, with the configuration varying depending upon specific site conditions. The result is an unacceptable number of operational unknowns for the layman and highly localized expertise within the consulting industry, which ultimately translates to prohibitive cost.

The significant objective of this phase of the project then was to evaluate how the equipment industry has responded to the potential in the sediment remediation arena: identifying the critical core pieces of equipment necessary for the key separations of interest and the minimum necessary auxiliary equipment required in support. The desired outcome is a portable testing unit that (a) is economical to purchase and operate, (b) can be supported with widely available equipment, (c) is adaptable to operational conditions and constraints at different facilities, and (d) is technically simple, operable by field personnel with a reasonable amount of preliminary instruction and technical support.

Testing of Candidate Equipment

The core unit to be evaluated under this project was a hydrocyclone separator. Performance factors for the equipment considered for demonstration and purchase were as follows:

- a. The experience of the offeror in conducting size separation studies with dredged material and/or soil.
- b. Suitability of the equipment to separate sediment/soil at the 75-μm target size cutoff.

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- c. Capability to produce a dewatered coarse product.
- d. Suitability of the equipment to handle a variety of sizes and types of dredged material.
- e. Portability of the unit.
- f. Capacity of the unit.
- g. Cost of the unit.
- h. Cost of the demonstration.
- i. Auxiliary equipment and site preparation requirements and costs.
- j. Technical expertise required for operation.
- k. Compatibility of equipment capacity with available storage area, water handling capability, and material preparation and feed capability at the demonstration site.

Preparation and auxiliary equipment requirements, adaptability, and technical expertise requirements were all relatively readily determined from product/offeror information and equipment design. Feed sensitivity and separation efficiency are best evaluated based on a performance test. It was anticipated that potential operational difficulties in this application and considerations of scale and logistics should come to light as a result of the demonstration. Samples were to be taken over a reasonable operating period to permit an assessment of the efficiency of the unit in making the desired separation, response to feed variations (if any), and the variability of the product material. A successful test would meet the separation criteria in a dewatered product, with a minimum of operational problems, at the specified efficiency. For the proposed demonstration, the specified cut point was 75 μ m, with no more than 10 percent fines (percent by weight passing a No. 200 sieve) in the underflow.

2 Project Description

The Bayport CDF in Green Bay, WI (Figure 1), was selected as the field demonstration site. Green Bay is located on the eastern shoreline of Wisconsin, on Lake Michigan. Approximately 115,000 cu m (150,000 cu yd) of sediment are dredged annually, to maintain the 29-km- (18-mile-) long shipping channel in the Port of Green Bay. The Bayport disposal facility was filled to design capacity in the early 1970's. Brown County sought and received authorization to dispose of additional dredged material there. Current operations involve mechanical dredging, with transport and offloading at the CDF by truck. To extend the life of the facility as long as possible, material is periodically removed from the facility, following a period of dewatering. The facility is divided into separate cells to permit offloading, dewatering, excavation, and stockpiling to occur concurrently. The Brown County Port Authority has taken an active interest in innovative management alternatives for dredged material, and the Bayport CDF was also recently the site of a biotreatment demonstration.

Project Activities

ERDC physical separation equipment available for demonstration/testing support was inventoried and its operational status verified. Response to an advertisement for technical support in identification of equipment alternatives and sources and development of a basic treatment train was limited (one firm responded) and exceeded the project budget for this task area. An extensive inhouse effort was therefore initiated to locate off-the-shelf equipment, and to identify those firms with interest in conducting a small demonstration and with availability of suitable scale equipment for preliminary field evaluation. Of the vendors contacted, only two indicated an interest in bringing equipment onsite for a small-scale demonstration: Tri-Flo Industries, Ltd., of Conroe, TX, and MetPro Supply, Inc., of Bartow, FL. Only one, MetPro Supply, responded to the advertisement for bids.

Tri-Flo Industries manufactures mobile, self-contained, fluid-processing equipment. Initially targeting the drilling industry, hydrocyclones mounted in series to a prefabricated header can be purchased, as well as complete, mobile, micro-fluid systems (MFS) designed for drilling mud recovery. These systems include a sump, mud "guns" for maintaining sediment in suspension, a shaking screen, hydrocyclones, and pumps. The configuration appears to have potential for sediment separation, but prescreening of gross oversize and slurrying of consolidated material would likely be needed to utilize the equipment as

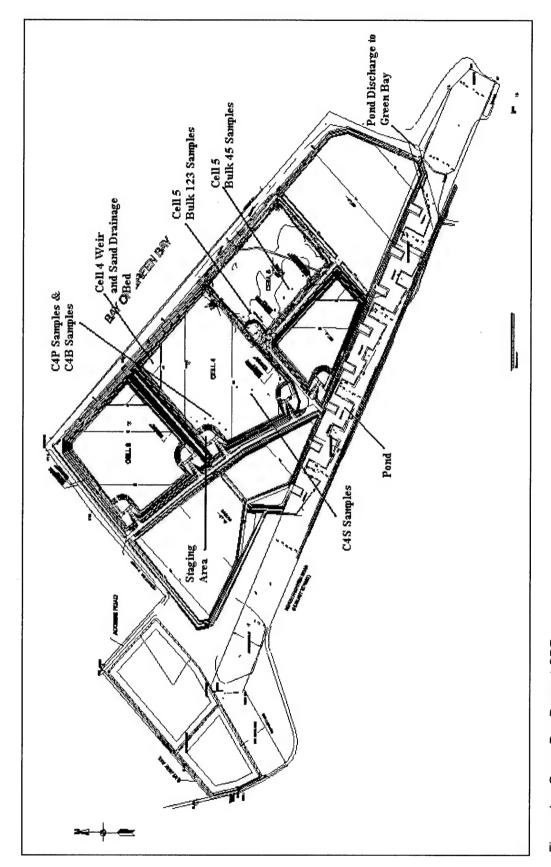


Figure 1. Green Bay Bayport CDF

presently equipped. One advantage to the configuration was the potential for making the sand/silt separation on the screen, followed by a finer cut at the hydrocyclones, thus addressing both size separations of principal interest with one unit. Tri-Flo also manufactures a mud pump that could be useful for excavating and slurrying consolidated material. The mud pump is equipped with an integral screen that prevents the pump from picking up oversize particles. Principal limitations of the equipment were the potential for blinding of the screens, the inability of screens to separate coarse organic materials from coarse minerals, and the fact that this equipment has not been demonstrated for dredged material or sediments.

MetPro Supply manufactures a self-contained maximum density separator (MDS) consisting of a trailer-mounted sump, slurry pump, and MDS. Both 0.15-and 0.3-m (6- and 12-in.) MDS have been demonstrated on sediments in the U.S. Army Engineer District, Jacksonville. Based on previous testing, MetPro recommended a 0.61-m (24-in.) MDS to produce a coarse fraction with less than 10 percent fines entrained. A 0.61-m (24-in.) MDS has a throughput of approximately 4.5 cu m (1,200 gal) per minute (approximately 68,039 kg (75 tons) solids per hour), and can accept particles up to 25-38 mm (1 – 1-1/2 in.) in diameter, thus simplifying prescreening. Dry or slurried material could be fed to the sump, with adjustments to the volume of makeup water supplied. The MDS differs from a conventional hydrocyclone in that a flexible sleeve is attached to the apex of the cone, and a vacuum is applied to the overflow line, thus restricting discharge of underflow until sufficient weight accumulates to force discharge. This reportedly results in a higher solids underflow.

Because of the potential variability in feed requirements, the offerors were tasked with providing the necessary auxiliary equipment to support the proposed separation unit, in effect developing a compatible treatment train. Mechanical excavation and prescreening were to be handled by the Detroit District. Auxiliary equipment was located in the Green Bay/Milwaukee area. A powerscreen for prescreening material; water supply pump; flexible, quick-coupling water hoses; and generator were available and obtained as short-term rentals.

Because the target separation of the proposed equipment was 75 µm, it was necessary to locate material containing sufficient sand to permit evaluation of the efficiency of the equipment in making this separation. Based on anecdotal information, Cell 5 was initially identified as containing sandy material from the outer harbor. Core and near-surface bulk samples were taken from Cell 5 for evaluation. However, finer material had apparently been placed over the target material, and the near-surface dredged material contained little sand. Additional samples were therefore taken for evaluation from Cell 4, where additional coarse material had recently been placed. (This material was from an inner harbor dredging project, and may not be representative of outer harbor sandy sediments). Sampling, sample handling, and bench-scale testing are further detailed in subsequent sections of this report. Approximately 380 cu m (500 cu yd) were

¹ Dean Haen, Personal Communication, 5 November 2001, Port Manager, Brown County Port and Solid Waste Department (Port of Green Bay), Green Bay, WI.

also excavated from Cell 5 for evaluation of material handling properties and effects of debris on ease of excavation as part of a cooperative effort funded under the DOER program. Some of this material was processed through the powerscreen to evaluate performance of a dry screen with wet of optimum material, and to evaluate the feasibility of feeding the hydrocyclone using mechanical excavation and prescreening. A smaller volume of material was excavated from Cell 4 for comparative processing through the screen. The remainder of the Cell 4 excavation was accomplished hydraulically, at the time of the demonstration.

Field Sampling and Sample Handling

Nineteen 25.4-mm- (1-in.-) diameter cores were taken from Cell 5 of the Bayport CDF (Figure 1) to assess moisture content of the material initially proposed for processing. The cores were taken from along the truck dump and the south dike, areas accessible for mechanical excavation, using an AMS Soil Core Sampler with slide hammer, including stainless steel soil collector, and 25.4- by 0.6-mm (1- by 24-in.) butyrate plastic liners with polyethylene caps. (Although 0.6-m (24-in.) tubes were used, in many cases only 0.15-0.5 m (6-18 in.) of dredged material was recovered due either to the compressibility of the material or the inability to drive the sampler deeper.) Five 19-L (5-gal) samples intended for bulk sediment chemistry and fractionation testing were taken along the same perimeter and placed in high-density polyethylene (HDPE) buckets, using a shovel decontaminated with acetone and distilled deionized (DDI) water between samples. Each bucket was placed in a cooler and packed in ice for shipment. Chain-of-custody forms were placed inside the coolers and coolers were sealed with tape and chain-of-custody seals. Chain-of-custody seals were intact upon receipt at the laboratory. Temperatures of the samples upon arrival were below 4 °C (1.7 to 3.3 °C), with the exception of Bucket 4, which was 5 °C. Core samples were not intended for chemical analysis and were therefore not refrigerated. They were left in the disposable plastic liners and shipped together in a cooler for later extrusion.

Before samples were taken from Cell 4, representative material was screened in the field to verify the presence of sand. Based on the field screening, the Cell 4 material along the northwest truck dump was roughly estimated to contain 40 – 50 percent sand. Samples were subsequently taken for laboratory analysis along the northwest truck dump (adjacent Cell 2), and along a radius from the southwest truck dump (adjacent Cell 5 and the road) toward the outlet. Because this was a duplicate effort, a repeat full-scale sampling effort was not feasible. Smaller sample volumes were therefore obtained during a subsequent site visit and progress meeting.

Twelve 0.9-L (1-qt) glass jars were obtained from Cell 4: three for bulk chemical analysis (C4B1-C4B3), six for particle size analysis (C4P1-C4P6) from the perimeter of the northwest truck dump, and three (C4S1-C4S3) for particle size analysis along the inner radius. Sample preservation and chain of custody were observed as for the Cell 5 samples.

Characterization and Bench-Scale Testing

Cell 5 characterization and bench-scale testing

The three 19-L (5-gal) samples taken from along the truck dump were mixed together (Buckets 1, 2 and 3 identified hereafter as Bulk 123 composite) and homogenized. The two 19-L (5-gal) samples taken along the dike (Buckets 4 and 5 identified as Bulk 45 composite) were also combined and homogenized. Wet chemistry, moisture content, and particle size distribution were evaluated on both composites. Because these parameters were relatively comparable for the two composites, one was selected for fractionation testing, rather than compositing the total volume. Bulk 123 was selected because of the greater accessibility of the area from which those buckets were taken, and the greater likelihood that they would be excavated. The cores were extracted from the plastic tubes, and samples were taken for water content analysis.

Particle size analysis. Subsamples of the Bulk 123 and Bulk 45 composites were analyzed on the Coulter particle size analyzer. Both composites contained over 90 percent fines.

Bulk sediment chemistry. The Bulk 123 composite and Bulk 45 composite were analyzed for polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), metals, total organic carbon (TOC), total recoverable petroleum hydrocarbons (TRPH), and oil and grease (O&G) (the latter three being potential indicator compounds). Results are summarized in Table 1. Concentrations were comparable for all analytes for both composites.

Water content analysis. The core samples (44 total) were analyzed in duplicate for water content ($w = (M_{water}/M_{solids})*100$) by oven drying. The average water content was 112.4 ± 24.6 percent. Water content of the Bulk 123 and Bulk 45 composites averaged 98.7 and 82.2 percent, respectively.

Fractionation testing. Approximately 10.5 kg (wet weight) of the Bulk 123 sample was wet sieved through a 75- μ m sieve for analysis of the sand (>75 μ m) and fines (< 75 μ m) fractions. The resultant slurries were centrifuged and the solids retained for particle size and chemical analysis. Both fractions were analyzed on the Coulter LS100 Particle Size Analyzer to determine the efficiency of the separation. The results (Table 2) show that the fines were not very effectively removed from the sand. Further separation of the clay and silt from a subsample of the fines was attempted using an upflow column. The clay was never effectively removed from the fines, and the samples were therefore not further analyzed.

Additionally, a subsample of the Bulk 123 was fractionated by density using heavy media separation in order to analyze the contaminant differences between mineral and organic sediment material. In this procedure, the sediment was combined with a solution of sodium polytungstate at a specific gravity of 2.0. The mixture was briefly sonicated and then centrifuged to separate the density fractions. The material heavier than 2.0 specific gravity (mineral) sank to the bottom, and the lighter fraction (organic) floated on top of the solution and was

Table 1 Green Bay Cell 5 Chemical Analysis of Bulk Sediment, Size, and **Density Fractions Bulk Sediment** Size Fractions **Density Fractions** Composite Composite <75 μm >75 µm >2.0 sp.gr. <2.0 sp.ar. Description (Fines) 45 123 (Sand) (Mineral) (Organic) **Indicator Analytes** 44833 48567 41300 38900 27800 47700 TOC, mg/kg 147 213 210 1030 67 640 O&G, mg/kg TRPH, mg/kg 78 106 106.5 525 54 350 TVS, % <4 <4 Metals, mg/kg 2.95 3.55 AS 3.29 3 1.8 2.99 CD 0.939 1 0.825 1.11 0.669 1.94 47.05 50.65 CR 52 41.3 53.33 85.2 CU 48.93 52 43.85 72.7 27.3 97.2 PΒ 76.8 68.8 64 58.3 40.9 51 HG 1.017 1 1.0345 1.44 0.625 2.2 NI 20.53 22 19.85 17.2 17.2 17.4 SE 1.06 1 0.95 1.55 0.599 0.998 AG 0 0.45 0.3 0.4 0.599 0.53 ΖN 154 142.7 143 145.5 91.5 128 ВА 81.70 83 77.95 57.65 70.7 73.5 FΕ 16300 16300 15500 10750 14600 7850 MN 442 485 436 832 382 434 MO 0.265 0.2 0 0.3 0.4 0.699 PCBs, µg/kg PCB-1016 <22.5 <24.5 <24.5 <29.7 <15.8 <27.1 <29.7 <15.8 PCB-1221 <22.5 <24.5 <24.5 <27.1 PCB-1232 <22.5 <24.5 <24.5 <29.7 <15.8 <27.1 PCB-1242 1307 1161 970 1742.5 351 3278 PCB-1248 <22.5 <24.5 <24.5 <29.7 <15.8 <27.1 PCB-1254 <22.5 <24.5 <24.3 <29.7 <15.8 <27.1 49.5 39.95 77.9 PCB-1260 52.3 27.3 111 PAHs, µg/kg NAPHTH 125 165.3 85.95 367 29.9 513 **ACENAY** 9.0 10.0 <20 41.2 <6.4 43.4 ACENAP 14.3 21.6 11 61.85 <6.4 72 27.75 123 10.8 169 **FLUORE** 36.2 42.5 220 176 70 1180 PHENAN 269.3 877 215 49.7 29.2 193.5 10.2 ANTRAC 39.8 FLANTHE 309 388.0 260.5 1130 99.9 1690 **PYRENE** 301 391.7 240 1360 82.1 1570 (Continued)

Table 1 (Concluded)						
	Bulk Se	Bulk Sediment Size Fractions		Density Fractions		
Description	Composite 45	Composite 123	<75 μm (Fines)	>75 μm (Sand)	>2.0 sp.gr. (Mineral)	<2.0 sp.gr. (Organic)
		PAHs, µg/kg	(Conclud	ed0		
CHRYSE	192	247.7	152	850	66.2	992
BAANTHR	139	180.3	97.95	756	29.9	720
BBFLANT	127	173.3	112.5	565	53.4	762
BKFLANT	101	139.0	76.35	463.5	32.4	521
BAPYRE	149	193.3	108.45	769	35.6	747
I123PYR	122	164.3	99.45	540	39.4	637
DBAHANT	26.6	29.2	19.5	114	5.1	105
B-GHI-PY	149	179.3	112.5	614	48.3	678
2MeNAPH	130	157.7	98.95	426	31.8	574

Table 2 Particle Size Analysis of Green Bay Cell 5 Samples							
Volume, %	Bulk 45	Bulk 123	Sand	Fines			
< 5 µm	27.1	24.3	5.88	30.5			
< 75 µm	93.3	90.8	43.5	99.98			
> 75 µm	6.70	9.2	56.5	0.02			

removed. The procedure was repeated several times to ensure a reasonably clean separation, as determined by visual inspection.

The four fractionated samples (fines, sand, mineral, organic) were analyzed for PAHs, PCBs, metals, and indicator analytes. Density (mineral and organic) samples were also analyzed for total volatile solids (TVS) to assess efficiency of separation, but this parameter was ultimately not useful, being less than the detection limit (DL) for both fractions. Results are summarized in Table 1.

The contaminant concentrations among the sand and fine fractions display trends opposite of that expected. The sand fraction is typically assumed to be relatively clean, and the fines to contain higher contaminant levels due to higher surface area and clay chemistry. Here, however, PAH and PCB concentrations in the sand exceed that of the fines, many by an order of magnitude. Most metal concentrations (arsenic, cadmium, chromium, copper, lead, mercury, selenium, manganese, molybdenum) were also higher in the sand than in the fines, but within the same order of magnitude. During wet sieving, an oily film was noted to settle on top of the sieved sand. It was thought that much of the contamination could be associated with this film, or with a coarse organic fraction. To evaluate this, the correlation coefficient was calculated for oil and grease and TOC concentrations versus PAH, PCB and metal concentrations. The resulting values indicate a strong linear relationship between oil and grease and PAH

concentrations, and a moderate relationship between oil and grease and PCBs and metals concentrations (Figures 2, 3, and 4), with the exception of selenium and manganese, which evidenced a strong linear relationship. PAH versus PCB concentrations were quite strongly linear. The correlation coefficient for TOC versus PAH, PCBs, and metals indicates a moderate to weak linear relationship. Note that this does not imply that there is not a strong relationship, simply the absence of a strong linear relationship.

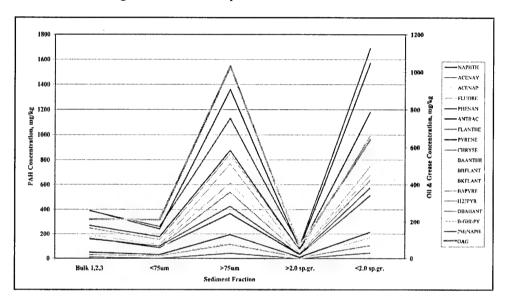


Figure 2. PAH versus oil and grease concentrations, Cell 5 material

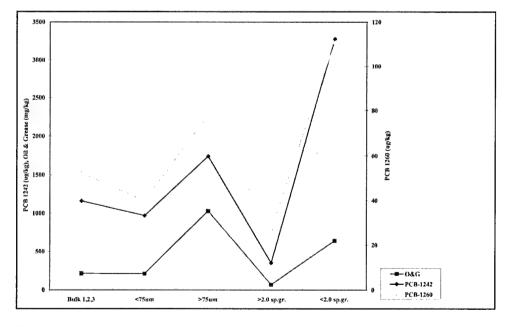


Figure 3. PCB versus oil and grease concentrations, Cell 5 material

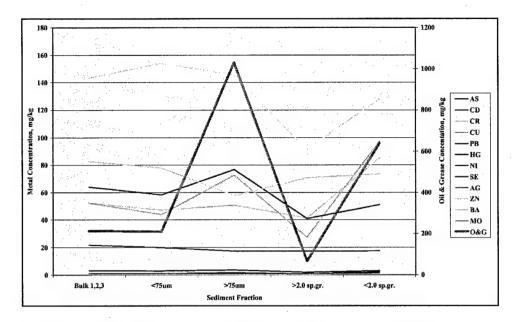


Figure 4. Metals versus oil and grease concentrations, Cell 5 material

The contaminant differences between the mineral and organic fractions were as expected, revealing order of magnitude greater PAH and PCB concentrations in the organic fraction. Metals were not as clearly distributed. Although higher concentrations of metals were present in the organic fraction, they were at the same order of magnitude as in the mineral fraction. Iron was an exception to this, being an order of magnitude higher in the mineral fraction than in the organic fraction. On average, metal concentrations were twice as high in the organic as in the mineral fraction (excluding iron), and PAHs and PCBs in the organic fraction averaged 18 and 7 times, respectively, that of the mineral fraction.

Cell 4 characterization and bench-scale testing

Particle size analysis. Samples C4P2, C4P4, and C4P6 were analyzed on the Coulter particle size analyzer to verify that a significant sand fraction was present. Percent greater than 75 μ m was approximately 40, 54, and 62 percent, respectively (by volume). Coulter analysis of the homogenized C4B samples indicated approximately 32.8 percent > 75 μ m. The samples taken from along the inner radius C4S1-3 were also analyzed on the Coulter, with the volume percent less than 75 μ m ranging from 96.5 to 99.6 percent, indicating that particular area would not be a good candidate for sand recovery. Output from the Coulter for the C4B samples is presented in Appendix A. Particle size analysis results are given in Table 3.

Table 3 Particle Siz	e Analysis o	of Green Bay C	Cell 4 Samples	•
Volume, %	C4P2	C4P4	C4P6	C4B
< 5 µm	15	13	10	20
< 75 µm	60	46	38	67.2
> 75 µm	40	54	62	32.8

Bulk sediment chemistry. The C4B1, C4B2, and C4B3 samples were homogenized, and two samples were then taken for bulk chemical analysis. The average concentrations for the composite are reported in Table 4. The analysis revealed the existence of some PAHs and metals, and concentrations of 3,755 and 39 μ g/kg, respectively, for PCB 1242 and PCB 1260.

Water content analysis. The water content of the C4P2, C4P4, and C4P6 samples was measured in duplicate by oven drying. The water contents averaged 59, 36, and 27 percent, respectively, for the three samples.

Fractionation testing. Although a full size and density separation was desired on the Cell 4 material, due to time constraints the most important separation to evaluate initially was the sand/silt separation at 75 µm. This separation was achieved by wet sieving a subsample of the material through a 75-µm sieve. The sand fraction was washed off the sieve, and the wash water was then drained off the sand. The sand sample was analyzed with the Coulter LS100 Particle Size Analyzer and was found to contain only 5.5 percent <75 µm and 1.1 percent < 5 μm by volume, indicating a relatively clean separation. Half the fines slurry was flocculated using Hychem, Inc., CP626 cationic polymer. Two (duplicate) samples from both the dewatered sand and flocculated fines (silt/clay) samples were analyzed for chemical constituents as summarized in Table 4. The other half of the fines fraction was reserved for further fractionation testing. The unflocculated silt and clay fractions were separated using a 50-mm (2-in.) hydrocyclone and the fractions analyzed for PCBs and indicator analytes. The silt and clay fractions were analyzed on the Coulter to evaluate effectiveness of the hydrocyclone separation. Approximately 5.7 percent of the silt fraction was greater than 75 µm, and approximately 14 percent less than 3 μ m. The presence of particles greater than 75 μ m in the silt fraction can be attributed to oblong particles that pass through the #200 sieve, and agglomeration of particles, which the Coulter may read as a single, larger particle. The clay fraction was less clean, with a mean particle size of 15.24 µm, and a median particle size of 6.39 µm. Approximately 90 percent of the clay fraction was less than 36 µm, and 50 percent less than 6.4 µm. Only 25 percent was less than 2.7 µm. The silt and clay fractions were also subsequently analyzed for chemical constituents (Table 4).

Unlike the Cell 5 analysis, the Cell 4 data follow the expected trends, with greater concentrations of the contaminants associated with the fines than with the sand. Concentrations of metals in the silt/clay fraction are almost all one to two orders of magnitude higher than in the sand. PCBs are an order of magnitude higher in the silt/clay fraction than in the sand. Differences in concentrations

Table 4 Chemical Analysis of Cell 4 Bulk and Fractionated Sediment

Sand (>75 μm) Avg. Conc.	Silt/Clay (<75 μm) Avg. Conc.	Silt (≈5 μm - 75 μm) Conc.	Clay (<5 μm) Avg. Conc.	Bulk Sediment Avg. Conc.
	Indicat	or Analytes		
1435	21100	9180	78900	27300
43	475	110	320	220
10.5 J ¹	270	46	180	185
				<4%
	Meta	ls, mg/kg		
0.45	5.05	2	6.85	2.2
0.04	1.355	0.32	2.29	0.6045
3.05	79.95	15.1	134	29.8
10.05	75.25	21.2	113	32.8
5.6	101.2	242	193.5	43.7
0.02	3.45	0.363	2.85	1.085
2.2	27.1	7	36.9	10.8
<0.200	1.1	0.3	1.3	0.4995
0.4	0.8995	0.4	1.6	0.4995
13.5	148.555	320	681	76.1
4.6	104.5	27.5	183	42.85
		10500	30600	3822.4
44.25	325.5	174	321	140
<0.100	0.849	0.5	1	0.3495
	PCE	Bs, μg/kg		
<10.3	<38.9	<11.2	<40.5	<12.7
<10.3	<38.9	<11.2	<40.5	<12.7
<10.3	<38.9	<11.2	<40.5	<12.7
444	5927.5	1950	7595	3754.5
<10.3	<38.9	<11.2	<40.5	<12.7
<10.3	<38.9	<11.2	<40.5	<12.7
21.4	317.5	18.2	238	39
	PAH	ls, μg/kg		
*2	*	SN SN	*	123.5
*	*	*	*	14.2
*	*	*	*	41.25
	*	*	*	53.4
	(>75 µm) Avg. Conc. 1435 43 10.5 J¹ 0.45 0.04 3.05 10.05 5.6 0.02 2.2 <0.200 0.4 13.5 4.6 44.25 <0.100 <10.3 <10.3 <10.3 <10.3 <10.3 21.4 *2 * * *	Sand (>75 μm) Avg. Conc. Indicate	(>75 μm) Avg. Conc. (<55 μm) - 75 μm) Avg. Conc. C	Sand (>75 μm) Avg. Conc. Silt (<5 μm - 75 μm) (<5 μm) Avg. Conc. Silt (<5 μm - 75 μm) (<5 μm) Avg. Conc. Silt (<5 μm - 75 μm) (<5 μm) Avg. Conc. Silt (<5 μm - 75 μm) (<5 μm) Avg. Conc. Silt (<5 μm - 75 μm) (<5 μm) Avg. Conc. Silt (<5 μm - 75 μm) (<5 μm) Avg. Conc. Silt (<5 μm - 75 μm) (<5 μm) Avg. Conc. Silt (<5 μm - 75 μm) (<5 μm) Avg. Conc. Silt (<5 μm - 75 μm) (<5 μm) Avg. Conc. Silt (<5 μm - 75 μm) (<5 μm) Avg. Conc. Silt (<5 μm - 75 μm) (<5 μm) Avg. Conc. Silt (<5 μm) Avg. Co

¹ Indicates estimated concentration for analyte that is above MDL but below LRL.

² * Due to budgetary constraints, fractionation testing was limited to PCBs and metals, which were thought to be of greatest concern. There was insufficient silt sample for duplicate analysis; results given are therefore based on analysis of only one sample.

Table 4 (C	oncluded)				
		Size F	ractions		
Analyte	Sand (>75 μm) Avg. Conc.	Silt/Clay (<75 μm) Avg. Conc.	Silt (≈5 μm - 75 μm) Conc.	Clay (<5 μm) Avg. Conc.	Bulk Sediment Avg. Conc.
		PAHs, µg/kg	g (Concluded)		
PHENAN	*	*	*	*	228.5
ANTRAC	*	*	7	*	46.55
FLANTHE		*	*	*	217
PYRENE	*	*	*	*	263
CHRYSE	*	*	*	*	148
BAANTHR	*	*	*	*	125
BBFLANT	*	*	*	*	85.1
BKFLANT	*	*	*	*	73.4
BAPYRE	*	-	*	•	117.5
I123PYR	*	*	*	*	82
DBAHANT	*		*	*	15.45
B-GHI-PY	*	*	*	*	95.55
2MeNAPH	*	*	*	*	145.5

between the silt fraction and the clay fraction are not as consistent, but concentrations in the clay fraction are higher for all analytes tested. TOC in the clay fraction is approximately 8.5 times that in the silt. Oil and grease, TRPH, PCB-1242, and PCB-1260 in the clay fraction are 2.9, 3.9, 3.9 and 26 times greater, respectively, than in the silt. Based on correlation coefficients, there is a strong positive correlation between metals concentrations and oil and grease and TRPH concentrations (Figure 5). Metals are moderately correlated to TOC concentration. There is also a moderate to strong positive correlation between PCBs, TRPH, and oil and grease (Figure 6) and PCBs and TOC (Figure 7).

Test Candidate Unit

A 1-day field demonstration was scheduled for 10 August 2000 at the Bayport CDF, Green Bay, WI. Equipment arrived onsite on Monday, 7 August 2000. Three full days were required to set up the system. This was not sufficient time to debug and troubleshoot, however; a cold start was made on the day of the demonstration. An electrical problem, unrelated to the separation unit, caused a minor delay. The system ran intermittently after that, with additional delays for clearing the jet pump and replacing or tightening clamps on water supply or slurry delivery hoses. The system was operated for approximately 5 hours, at which time sufficient material had been processed to assess the separation efficiency, and overall system characteristics and trouble points had been identified.

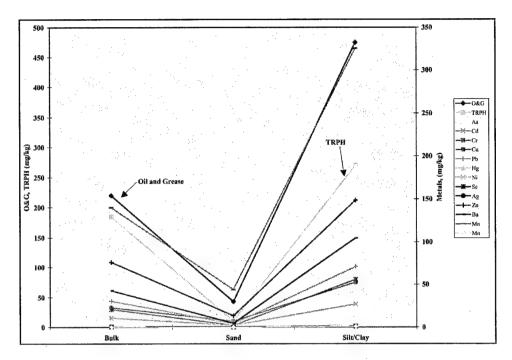


Figure 5. Metals versus TRPH and oil and grease concentrations, Cell 4 material

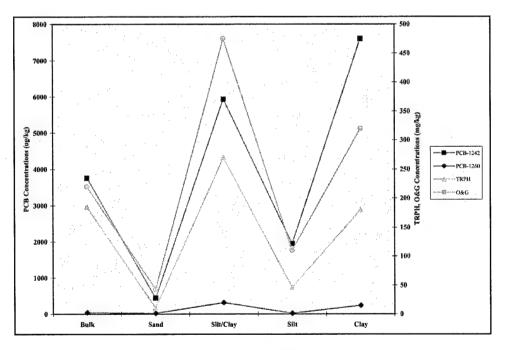


Figure 6. PCB versus TRPH and oil and grease concentrations, Cell 4 material

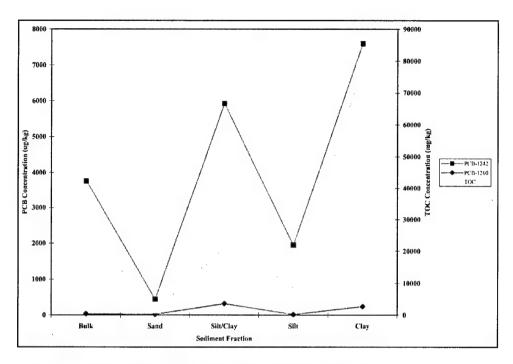


Figure 7. PCB versus TOC concentrations, Cell 4 material

Site logistics

The Cell 4 staging area was much farther from the freshwater source than the staging area originally selected for processing the Cell 5 material. Additionally, the Cell 4 staging area was much smaller than the original site, making onsite stockpiling of mechanically excavated material infeasible. It was therefore decided to excavate only a small amount of Cell 4 material for screening testing, and to excavate feed for the hydrocyclone using a modified jet pump. This was a particularly attractive alternative because of the potential benefits of small-scale hydraulic excavation or mechanical excavation (accessibility in unstable material, maneuverability around debris), and the added information that would result from a single effort. The principal disadvantage of this approach was that the process water had to be pumped approximately 300 m (1,000 ft) to the excavation point.

Equipment

Because of the distance between the staging area and the freshwater source, a larger water pump, transfer hoses, and generator were required than for the original staging area. Water pump, generator, and flexible hoses with quick couplings were available and obtained on a short-term rental basis. The MetPro mobile unit was as previously described in the section "Project Activities," consisting of a trailer, slurry pump, sump, and 0.6-m (24-in.) MDS (Figure 8). The eductor pump was fitted with an exterior ring, providing water jets for horizontal excavation (Figure 9). A powerscreen was also rented for screening the mechanically excavated material (Figures 10 and 11). The unit consisted of a grizzly, hopper with shredder, conveyer and shaking screen, equipped with a



Figure 8. MetPro mobile MDS unit



Figure 9. Eductor pump



Figure 10. Powerscreen



Figure 11. Screen undersize

harp screen to enhance processing of clayey material and reduce plugging due to wet material.

Field operation

The generator and water pump performed well, and similar equipment should be readily available at most locations. The flexible hoses were not designed to operate at the optimum delivery pressure, however. Several failures of the coupling/hose attachment occurred, but once this problem was addressed, the hoses performed reasonably well with the pump discharge throttled back somewhat. Based on this experience, however, it is thought that suitable hoses should be purchased for future operations. The eductor pump, although somewhat crudely assembled for the purposes of demonstration, performed fairly effectively. Although the site was heavily vegetated, the vegetation did not prevent excavation of the sediment in situ. Some variability was noted in the feed percent solids. Although this does not appear to have adversely affected the separation achieved, the result is an inefficient utilization of available water supply: and under different circumstances, separation efficiency could be affected. The pump did plug with large woody debris on two or three occasions. This could be prevented with a coarse protective screen at the pump intake. Additionally, no water jets faced in the downward direction. Excavation was impeded when a large rock was encountered underneath the pump. The sump and cyclone performed as expected. There was one failure of a band coupling, and this is potentially a weak point in the system. This connection could be made more secure with permanent piping, rather than the flexible hoses used to deliver the slurry pump discharge to the hydrocyclone inlet.

The Powerscreen performed relatively well considering that the material being fed was much wetter than the equipment is designed to handle. Problems were encountered, however, in feeding the screen. Clay clods rolled off the grizzly, reporting with the oversize. Attempts to push this material through the grizzly were only partially successful and time-consuming. The shaking screen passed the moist, fine materials without any evident problem, but blinding did occur on the coarse upper screen, where 0.1- to 0.15-m (4- to 6-in.) chunks of asphalt collected and had to be manually scraped off. Although the results indicate that the Powerscreen may be useful to prepare a small amount of material for process testing, feeding a full-scale hydrocyclone operation in this manner is probably infeasible.

Visitors

The demonstration was scheduled for 10 August 2000. Notice of the demonstration was posted on the Detroit District Web site, and notification sent directly to regulators and environmental organizations in the region. Approximately 30 people attended the demonstration. Results of the demonstration were also presented to the Great Lakes Commission in October 2000.

Process sampling

Three 19-L (5-gal) samples were taken simultaneously from the feed slurry and overflow, and three 4-L (1-gal) samples were taken from the underflow at five different intervals during processing (1400, 1505, 1525, 1625, and 1715) hours). Samples were captured and transported in new HDPE buckets. Of these, two from each sampling event were designated for particle size distribution and contaminant concentration analysis. The remainder of the samples were designated for particle size distribution only. The field sampling contractor was responsible for obtaining process samples and packaging and shipping them to ERDC. The overflow was sampled using a J-shaped diverter of polyvinyl chloride (PVC) pipe, which was passed through the overflow stream vertically to obtain a representative sample. The feed stream was sampled from a port welded onto the outlet from the slurry pump, where the slurry was expected to be turbulent and therefore well mixed. The line was purged for a few seconds prior to taking each sample. Underflow samples were captured directly from the cyclone underflow discharge. The volume of underflow samples was reduced from that specified in the Quality Assurance Project Plan due to the high solids content of the underflow; 4-L (1-gal) samples were sufficient for all proposed analysis. Samples designated for chemical analysis were placed in a cooler and packed in ice for shipment. Samples designated for particle size analysis only were not refrigerated. Chain-of-custody forms were completed.

A single 19-L (5-gal) sample of the process supply water was also taken to establish baseline concentrations. It was initially proposed to sample effluent at the pond discharge during and after processing to verify that no permit parameters were violated during processing. However, water levels in the pond were low enough that there was no discharge from the pond at the time of processing, and the process overflow was passed through a sand drainage bed prior to being returned to the pond, reducing suspended solids. Dissolved contaminant levels were therefore measured in the process overflow and compared to Freshwater Acute Federal water quality criteria (USEPA 1999a). Of the parameters measured in the overflow having criteria, none exceeded acute water quality criteria.

Upon arrival at ERDC, the samples were refrigerated, and samples designated for chemical analysis were quickly processed to meet specified holding times. The feed and overflow slurry samples designated for chemical analysis (two field duplicates per stream per sampling time) were sampled while being stirred to obtain representative samples of the slurry. They were then centrifuged, and both solids and supernatant collected for chemical analysis. Percent solids of the underflow samples was much higher, and subsamples were taken directly from the buckets for chemical and particle size analysis without centrifuging. Subsamples of all process solids were also taken for water content and particle size analysis. Due to the difficulty involved in obtaining a representative subsample from a slurry, slurry samples were allowed to settle for

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¹ The QAPP describes the technical quality assurance/quality control for specific data collection, project objectives and organization, sampling design, analytical methods, data quality indicators, and data review (USEPA 1997, 1998).

an extended period of time. The supernatant was then poured off, the supernatant and remaining wet solids weighed, and then water content of the wet solids determined by oven drying. In this manner, the initial solids content of the slurry could be calculated. The settled solids were analyzed on the Coulter particle size analyzer for particle size distribution.

Results

Particle size analysis

Results of the particle size data for samples taken from the feed and overflow samples while stirring versus samples taken from the settled slurries were different. Because the settled slurries were still relatively liquid but at a higher percent solids, it was possible to mix them thoroughly and avoid rapid settling of coarse particles, thus producing more representative samples of all size ranges in the solids. The feed and overflow particle size distributions reported in Table 5 are for the subsamples taken from the settled samples. The underflow contained less than 8 percent fines by volume. Depending upon the specific gravity of the particles, this can be converted to percent fines by weight. Because the Coulter counter measures particle volume only (void volume is not measured), percent sand by volume can be taken to be approximately equivalent to percent sand by mass, assuming the same specific gravity for all particles in the material.

Percent moisture/percent solids

Results of percent moisture (W_{water}/W_{total}) and percent solids (W_{solids}/W_{total}) for the process streams are summarized in Table 6. The percent solids of the feed varied from 1.8 to 5.9 percent by weight. This is a relatively dilute feed stream. Although the separation efficiency is enhanced by a dilute feed stream, operational efficiency overall is lower than optimum. Percent solids of the underflow was quite high, ranging from 75.2 to 80.3 percent, reflecting the coarse nature of the underflow. Mean percent moisture of the underflow was approximately 22 percent, compared with approximately 98 percent for the feed and overflow process streams.

Chemical analysis

The results of the chemical analysis for each replicate at each sampling time were averaged for the three process streams, and are summarized in Table 7. For comparison, results of the bench-scale characterization for these fractions are given in parentheses. Qualitatively, the bench-scale testing appears to have given a relatively representative indication of the contaminant levels in the field-scale process streams. To evaluate whether the concentrations in the process and characterization fractions are essentially equivalent, the data were evaluated. Contaminants included arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, zinc, barium, PCB 1242, PCB 1260, TOC, oil and grease, and TRPH. One-half the detection limit was used for contaminant concentrations less than the detection limit. The Statistical Analysis System (SAS) release 8.1 was used to perform the data analysis (SAS Institute, Inc., 1989a, 1989b). The statistical procedures and assumptions are more fully

Table 5			
Particle Siz	e Analysis of Streams	from the Mobile Hy	drocyclone
Demonstrat	tion		
Sample	Sand Volume % > 76.42 µm	Silt Volume % 5-76.42 µm	Clay Volume % < 5 µm
	Fe	eed	
F1400	26.2	55.6	18.2
F1505	23.4	59.1	17.5
F1525	33.5	49.6	16.9
F1625	26.9	55.2	17.9
F1715	30.4	52.5	17.1
Average	28.1	54.4	17.5
	Ove	rflow	
O1400	15.7	61.8	22.5
O1505	11.5	68.7	19.8
O1525	22.5	57.5	20
O1625	19.7	63.8	16.5
O1715	23.9	55.9	20.2
Average	18.7	61.5	19.8
	Unde	erflow	
U1400	91.36	7.02	1.62
U1505	92.12	6.56	1.32
U1525	90.23	8.05	1.72
U1625	92.52	6.08	1.4
U1715	94.31	4.43	1.26
Average	92.11	6.43	1.46

described in Appendix B. On the basis of the statistical analysis, the following generalizations regarding concentrations in the process streams and bench-scale samples, respectively, can be made:

- a. Underflow = sand
- b. Overflow = silt/clay for zinc, oil and grease, and TRPH
- c. Overflow < silt/clay for all other analytes except TOC
- d. Overflow > silt/clay for TOC
- e. Feed = bulk for all analytes except PCB 1260
- f. Feed > bulk for PCB 1260

The statistical power of the analysis for most analytes was less than 75. The power was greater than 75 for comparison of nickel in underflow and sand, and for PCB 1242 in feed and bulk for the one-tailed tests. Power was also greater than 75 for comparison of nickel and PCB 1260 in underflow and sand and for comparison of arsenic, chromium, nickel, barium, PCB 1242, PCB 1260, oil and grease, and TRPH in feed and bulk for the two-tailed tests.

Table 6 Percent Moisture and Percent Solids of Process Streams				
Sample	mple Percent Moisture Percent Solids			
	Feed			
F1400	94.08	5.92		
F1505	98.53	1.47		
F1525	98.18	1.82		
F1625	98.53	1.47		
F1715	98.19	1.81		
Average	97.5	2.5		
	Overflow			
O1400	96.94	3.06		
O1505	98.80	1.20		
O1525	98.88	1.12		
O1625	99.09	0.91		
O1715	98.66	1.34		
Average	98.5	1.5		
	Underflow			
U1400-3	19.84	80.16		
U1505-3	24.77	75.23		
U1525-3	24.59	75.41		
U1625-3	19.69	80.31		
U1715-3	20.62	79.38		
Average	21.9	78.1		

From a practical standpoint, it appears that the bench-scale characterization will give predicted concentrations at least within the same order of magnitude as the field process. In some cases, it is quite representative of the contaminant distribution that will be achieved at full scale for this process. From a processing objective, the statistical analysis suggests that the quality of the underflow was higher than the quality of the sand produced in the bench-scale testing, which is a favorable outcome. In some cases this may be attributable to lower concentrations in the process feed, but for other constituents this is not the case. SAS output is presented in Appendix B.

With regard to the processing objectives, the contaminant concentrations in the underflow ranged from 2 percent to 39 percent of that in the feed. PCBs were reduced 95 percent (Arochlor 1242) and 92 percent (Arochlor 1260), from 2,714 μ g/kg to 144 μ g/kg, and from 145 μ g/kg to 11.9 μ g/kg, respectively. TOC, oil and grease, and TRPH were significantly reduced in the process underflow. Most metals concentrations were reduced by an order of magnitude in the underflow, selenium, silver, and molybdenum being the exceptions. Selenium was reduced by a factor of 2.6, silver by a factor of 2.6, and molybdenum by a factor of 7.8.

Data validation sheets are included in Appendix C. Data were evaluated on the basis of representativeness, comparability, and completeness.

	A Committee of the Comm	Process Solids			Process Water			
Analyte	Feed	Overflow	Underflow	Supply	Feed Supernatant	Overflow Supernatant	Underflow Supernatant	
			1	ndicator Analyte	S			
TOC (mg/kg)	26,500 (27300)	46,480 (21100)	1019 (1435)					
TVS (%)	<4 (<4)	<4	<4					
O&G (mg/kg)	332 (220)	435 (475)	16 (43)					
TRPH (mg/kg)	259 (185)	338 (270)	<42.2 (10.5J)					
				PCBs				
Arochlor 1242 (ppb)	2713.8 (3754.5)	4037.9 (5927.5)	144.0 (444)	<0.24	0.27	0.21	N/A	
Arochlor 1260 (ppb)	145.0 (39)	109.9 (317.5)	11.9 (21.4)	<0.24	<0.24	<0.26	N/A	
A THE RESIDENCE OF THE PROPERTY OF THE PROPERT				Metals			and the second	
As (ppm)	2.805 (2.2)	3.4 (5.05)	0.4883 (0.45)	0.005	0.0039	0.0041	N/A	
Cd (ppm)	0.5809 (0.6045)	0.82 (1.355)	0.05908 (0.04)	<0.0002	<0.0002	<0.0002	N/A	
Cr (ppm)	38.44 (29.8)	48.8 (79.95)	2.896 (3.05)	0.006	0.0046	0.0055	N/A	
Cu (ppm)	37.81 (32.8)	50 (75.25)	3.386 (10.05)	0.003	0.0025	0.0021	N/A	
Pb (ppm)	41.69 (43.7)	59.6 (101.2)	2.937 (5.6)	<0.001	<0.001	<0.001	N/A	
Hg (ppm)	0.8834 (1.085)	1.3 (3.45)	<0.040 (0.02)	<0.00020	<0.00020	<0.00020	N/A	
Ni (ppm)	15.718 (10.8)	19.0 (27.1)	2.578 (2.2)	0.014	0.0096	0.0093	N/A	
Se (ppm)	0.5116 (0.4995)	0.65 (1.1)	0.2 (<0.200)	0.002	0.002	0.002	N/A	
Ag (ppm)	0.3447 (0.4995)	0.53 (0.8995)	0.1333 (0.4)	<0.001	<0.001	<0.001	N/A	
Zn (ppm)	81.4 (76.1)	116.9 (148.55)	5.431 (13.5)	0.046	0.0428	0.0396	N/A	
Ba (ppm)	61.12 (42.85)	79.4 (104.5)	5.5052 (4.6)	0.108	0.1828	0.1769	N/A	
Fe (ppm)	14251 (3822.4)	18010	1879	0.08	0.1304	0.0703	N/A	
Mg (ppm)	15200	17740	N/A	75.6	76.85	78.19	N/A	
Mn (ppm)	275.2 (140)	366.2 (325.5)	47.71 (44.25)	3.03	1.609	1.60	N/A	
Mo (ppm)	0.7798 (0.3495)	0.40 (0.849)	0.1 (<0.100)	<0.001	0.003	0.0033	N/A	

Representativeness and comparability are qualitative criteria, and completeness is a quantitative criterion. Representativeness is a key concern during field sampling activities, and expresses the degree to which sample data accurately represent the site, specific matrices, and parameter variations at a sampling point. Representativeness is dependent on the proper design of the sampling program, proper selection of laboratory methods for the matrix under scrutiny, and stability of the laboratory methods. The representativeness criterion is best satisfied by making certain that the sampling locations, procedures, and quantities are selected based on the project objectives, and that suitable analytical procedures are utilized, preservation requirements are met, and holding times are not exceeded in the laboratory.

Comparability expresses the confidence with which one data set can be compared with another. The analysis of certified reference materials is used to provide data on comparability. The data obtained within this project will be comparable because all the standard operating procedures used in the determinations are based on methods with proven protocols and proven internal and external audit compliance relative to performance testing on certified reference material soils. All analyses of a single type will be conducted at the same laboratory. Completeness of the deliverable is measured for each set of data received by dividing the number of valid (passing quality assurance/quality control (QA/QC) requirements) measurements actually obtained by the number of measurements made. Each of the analytical parameters is evaluated separately in terms of precision, accuracy, and data acceptability. Precision pertains to the repeatability of the test, and is determined using a relative percent difference for duplicate samples and, for three or more replicate analysis, as a relative standard deviation or coefficient of variation. Most literature suggests that the goal for precision among field duplicates should be within 30 percent expressed as a relative percentage difference. Accuracy pertains to the closeness to the true value, and is evaluated using matrix spike recoveries expressed as a percent recovery. Completeness is then calculated on the basis of the number of samples meeting the established QA/QC requirements, as previously described. Acceptable completeness for a data set has been set at 90 percent meeting OA/OC requirements.

Completeness of the data was above 90 percent for all three data sets (Cells 4 and 5 characterization and field demonstration data). Some data were qualified due to minor problems. Corrective actions and data qualifications are detailed in the individual data validation sheets attached in Appendix C.

Equipment Acquisition

On the basis of the performance of the 0.6-m (24-in.) MDS, a 0.3-m (12-in.) MDS was purchased for laboratory and field-scale feasibility testing. The capacity of the 0.3-m (12-in.) MDS is not sufficient for large-scale processing, but is better suited for feasibility testing because the volumes of process water required are more manageable, and the supporting equipment is correspondingly smaller and more widely available. A vibrating wet screen was also purchased for screening out oversize prior to the sump of the hydrocyclone, and fitted with 13-mm (1/2-in.) and 6-mm (1/4-in.) screens. Either dry or slurried material can

be fed onto the screen. The screen was ordered with excess capacity so that it could also be used with full-scale processing operations.

3 Conclusions

The principal objectives of the project were to evaluate the efficiency of the 0.6-m (24-in.) MDS in producing a sand fraction with fines and PCB concentrations sufficiently reduced to permit beneficial use, and to evaluate the correspondence of contaminant levels predicted by bench-scale testing versus field-scale operation. The target product (sand) specifications were less than 10 percent fines by mass and PCB concentrations less than 1 mg/kg. The underflow fraction produced averaged over 92 percent sand, as measured by a Coulter counter, and 0.144 mg/kg PCB 1242 and 0.0119 mg/kg PCB 1260. Based on statistical analysis of the results, the contaminant concentrations predicted for the sand fraction by the bench-scale testing were essentially equivalent to that achieved in the field operation. This is particularly significant since the process feed concentration of PCB 1260 was statistically greater than the bulk sediment concentration for the bench-scale testing. This indicates a somewhat higher efficiency of PCB removal for the MDS compared with that of wet sieving of the material. This may be attributable to the presence of coarse organic particles, which would report with the sand on a wet sieve, but would report with the overflow of a hydrocyclone. This is supported by the higher TOC concentration measured in the process overflow compared with that of the silt/clay fraction of the bulk sediment used in bench-scale testing. Distribution of metals was somewhat more variable than for PCBs, but metals were reduced by an order of magnitude in the sand fraction, with the exception of selenium, silver, and molybdenum. Selenium, silver, and molybdenum were reduced by factors of 2.6 to 7.8. In the absence of specific criteria establishing acceptable levels of metal constituents, partitioning theory could be used to evaluate the magnitude of potential release of metals in the beneficial use environment. Predicted releases could then be compared with applicable water quality criteria and necessary dilutions estimated.

Chapter 3 Conclusions 29

References

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Appendix A Coulter Counter Particle Size Analysis, Cell 4 Material



Page 1 22 May 2002 11:10

- US Waterways Experiment Station -

File name: Operator:

C4b.\$av Susan Bailey

Optical model: LS 100Q

Fraunhofer Fluid Module

Fluid:

Water

Run length:

60 seconds

Software:

3.01 2.11

Firmware:

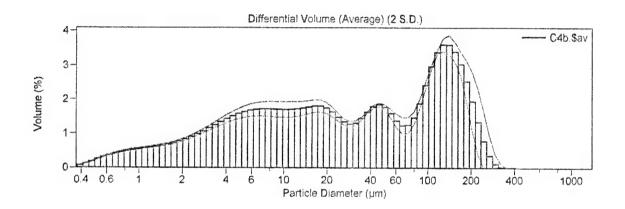
2.02 2 02

Average of 3 Files:

C4b1.\$av

C4b2.\$av

C4b3.\$av



Volume Statistics (Arithmetic)

C4b.\$av

Calculations from 0.375 µm to 948.2 µm

Volume: Mean: Median: 100%

59.32 µm 25.95 µm 6.291 µm

S.D.: C.V.: 65.88 µm 111%

90

161.7

D(3,2): 127.6 µm Mode:

% < μm

A2

10 2.371 25 6.565

25.95

107.9



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- US Waterways Experiment Station

C4b.\$av					
Channel	Particle	Cum. <	Channel	Particle	Cum. <
Number	Diameter	Volume	Number	Diameter	Volume
	(Lower)	8		(Lower)	8
	μm			μm	
1	0.375	0	51	39.77	56.4
2	0.412	0.070	52	43.66	58.2
3	0.452	0.19	53	47.93	60.0
4	0.496	0.38	54	52.63	61.8
5 6	0.545	0.64	55	57.77	63.4
7	0.598 0.657	0.96 1.33	56 57	63.41	64.7
8	0.721	1.75	58	69.62 76.43	66.0 67.2
9	0.791	2.22	59	83.90	68.7
10	0.869	2.72	60	92.09	70.6
11	0.953	3.25	61	101.1	73.0
12	1.047	3.81	62	111.0	75.9
13 14	1.149 1.261	4.38	63	121.8	79.3
15	1.385	4.98 5.61	64 65	133.7 146.8	82.9 86.5
16	1.520	6,27	66	161.2	89.9
17	1.669	6.95	67	176.8	92.9
18	1.832	7.69	68	194.2	95.5
19	2.010	8.47	69	213.2	97.4
20 21	2.207	9.31	70	234.1	98.7
22	2.423 2.660	10.2 11.2	71 72	256.8	99.5
23.	2.920	12.3	73	282.1 309.6	99.9 99.97
24	3.206	13.4	74	339.8	99.997
25	3.519	14.7	75	373.1	100
26	3.862	16.0	76	409.6	100
27 28	4.241 4.656	17.5	77	449.7	100
29	5,111	19.0 20.5	78 79	493.6 541.9	100
30	5,611	22.2	80	594.9	100 100
31	6.158	23.9	81	653.0	100
32	6.761	25.6	82	716.9	100
33 34	7.421	27.3	83	786.9	100
35	8.147 8.944	29.0 30.7	84	863.9	100
36	9.819	32.4		948.2	100
37	10.78	34.1			
38	11.83	35.8			
39	12.99	37.5			
40 41	14.26 15.65	39.2 41.0			
42	17.18	42.8			
43	18.86	44.6			
44	20.70	46.3			
45	22.73	48.0			
46	24.95	49.4			
47 48	27.38 30.07	50.8			
49	33.00	52.1 53.4			
50	36.24	54.8			



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- US Waterways Experiment Station -

File name: Operator:

C4b.\$av Susan Bailey

Optical model: LS 100Q

Fraunhofer Fluid Module

Fluid:

Water

Run length:

60 seconds

Software:

3.01 2.11

Firmware:

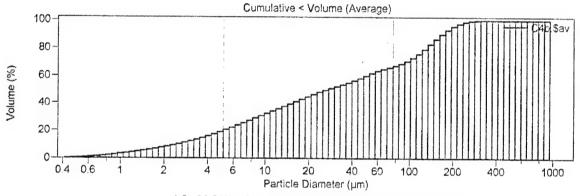
2.02 2.02

Average of 3 Files:

C4b1.\$av

C4b2.\$av

C4b3.\$av



LC= 20.54% < 5.111 µm UC= 67.22% < 76.43 µm {46.68%}

Volume Statistics (Arithmetic)

C4b.\$av

Calculations from 5.111 µm to 76.43 µm

Volume:

46.7%

Mean: Median: 25.13 µm 18.19 µm

S.D.: C.V.: 18.77 µm 74.7%

90

55.08

D(3,2): Mode:

14.33 µm

45.75 µm

75 37,89

% < μm

10

6.639

25 9.729 50 18.19



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- US Waterways Experiment Station -

C4b.\$av					
Channel	Particle	Cum. <	Channel	Particle	Cum. <
Number	Diameter	Volume	Number	Diameter	Volume
	(Lower)	8		(Lower)	96
	иm			µm	
1	0.375	0 '	51	39.77	56.4
2	0.412	0.070	52	43.66	58.2
3	0.452	0.19	53	47.93	60.0
4	0.496	0.38	54	52.63	61.8
5	0.545	0.64	55	57.77	63.4
6 7	0.598 0.657	0.96 1.33	56 57	63.41 69.62	64.7 65.0
8	0.721	1.75	58	76.43	67.2
9	0.791	2.22	59	83.90	68.7
10	0.869	2.72	60	92.09	70.6
11	0.953	3.25	61	101.1	73.0
12 13	1.047 1.149	3.81 4.38	62 63	111.0 121.8	75.9 79.3
14	1.261	4.98	64	133.7	82.9
15	1.385	5.61	65	146.8	86.5
16	1.520	6.27	66	161.2	89.9
17 18	1.669	6.95 7.69	.67 68	176.8	92.9
19	1.832 2.010	8.47	69	194.2 213.2	95.5 97.4
20	2.207	9.31	70	234.1	98.7
21	2.423	10.2	71	256.8	99.5
22	2.660	11.2	72	282.1	99.9
23 24	2.920 3.206	12.3 13.4	73 74	309.6 339.8	99.97 99.9 97
25	3.519	14.7	75	373.1	100
26	3.862	16.0	76	409.6	100
27	4.241	17.5	77	449.7	100
28	4.656	19.0	78	493.6	100
29 30	5.111 5.611	20.5 22.2	79 80	541.9 594.9	100 100
31	6.158	23.9	81	653.0	100
32	6.761	25.6	82	716.9	100
33	7.421	27.3	83	786.9	100
34 35	8.147 8.944	29.0	84	863.9	100
36	9.819	30.7 32.4		948.2	100
37	10.78	34.1			
38	11.83	35.8			
39	12.99	37.5			
40 41	14.26 15.65	39.2 41.0			
42	17.18	42.8			
43	18.86	44.6			
44	20.70	46.3			
45 46	22.73 24.95	48.0 49.4			
47	27.38	50.8			
48	30.07	52.1			•
49	33.00	53.4			
50	36.24	54.8			



Page 1 22 May 2002 11:20

- US Waterways Experiment Station -

File name: Operator:

C4b.\$av Susan Bailey

Optical model: LS 100Q

Fraunhofer Fluid Module

Fluid:

Water 3.01 2.11 Run length:

60 seconds

Software:

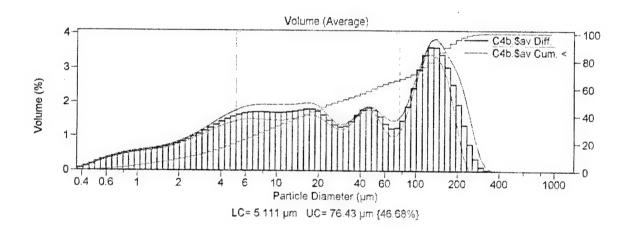
Firmware:

2.02 2.02

Average of 3 Files: C4b1.\$av

C4b2.\$av

C4b3.\$ay



Appendix B Statistical Analysis of Results

Statistical Procedures, Assumptions and Analysis

Step (A). Evaluate the equality of variance assumption using the folded form of the F statistic (Snedecor and Cochran 1980). The null hypothesis is that the variance of group 1 is equal to the group 2 variance. The alternative hypothesis is that the variance of group 1 is not equal to the group 2 variance. These results are shown in Tables B3, B6, and B9. If probability Pr > F is less than 0.05, the null hypothesis was rejected.

Step (B). If the equality of variance hypothesis is not rejected, the test statistic was calculated using a pooled estimate of the variance. If the equality of variance hypothesis is rejected, a test statistic that assumes unequal population variances was utilized (Snedecor and Cochran 1980). These results are shown in Tables B2, B5, and B8. The respective hypotheses were expressed as HO: μ Feed $\leq \mu$ Bulk and HA: μ Feed $> \mu$ Bulk; HO: μ Underflow $\leq \mu$ Sand and HA: μ Underflow $> \mu$ Sand; HO: μ Overflow $\leq \mu$ Silt/Clay and HA: μ Overflow $> \mu$ Silt/Clay. The one-tailed t-test was conducted at α =0.05. For a one-tailed t-test halve the Prov >|T| value. Reject the null hypothesis if half the Prob > |T| is less than 0.05.

From the underflow and sand data one would conclude that the underflow mean concentrations are less than or equal to the sand mean concentrations (Table B2). For the current experimental design, the mean comparison for nickel was the only comparison with a power greater than 0.75. From the overflow and silt/clay data one would conclude that the arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, zinc, barium, PCB 1242, PCB 1260, oil and grease, and TRPH overflow mean concentrations are less than or equal to the silt/clay mean concentrations and the TOC overflow mean concentration is greater than the silt/clay mean concentration (Table B5). For the current experimental design, the TOC and TRPH comparisons were the only comparisons with a power greater than 0.75. From the feed and bulk data one would conclude that the arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, zinc, barium, PCB 1242, TOC, oil and grease, and TRPH feed mean concentrations are less than or equal to the bulk mean concentrations and the PCB 1260 feed mean concentration is greater than the bulk mean concentration (Table B8). For the current experimental design, the PCB 1242 comparison was the only comparison with a power greater than 0.75.

An alternate way to write the respective hypotheses was HO: μ Feed = μ Bulk and HA: μ Feed $\neq \mu$ Bulk; HO: μ Underflow = μ Sand and HA: μ Underflow $\neq \mu$ Sand; HO: μ Overflow = μ Silt/Clay and HA: μ Overflow $\neq \mu$ Silt/Clay. Reject the null hypothesis if the Prob > |T| is less than 0.05.

From the underflow and sand data one would conclude that the underflow mean concentrations are equal to the sand mean concentrations (Table B2). For the current experimental design, the nickel and PCB 1260 comparisons were the

¹ References cited in this appendix are included in the References section at the end of the main text.

only comparisons with a power greater than 0.75. From the overflow and silt/clay data one would conclude that the zinc, oil and grease, and TRPH overflow mean concentrations are equal to the silt/clay mean concentrations and the arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, barium, TOC, PCB 1242, and PCB 1260 overflow mean concentrations are not equal to the silt/clay mean concentrations (Table B5). For the current experimental design, the power of the comparison for arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, barium, PCB 1242, PCB 1260, and TOC was greater than 0.75. From the feed and bulk data one would conclude that the arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, zinc, barium, TOC, oil and grease, and TRPH feed mean concentrations are equal to the bulk mean concentrations and the PCB 1242 and PCB 1260 feed mean concentrations are not equal to the bulk mean concentrations (Table B8). For the current experimental design, the power of the comparison for arsenic, chromium, nickel, barium, PCB 1242, PCB 1260, oil and grease, and TRPH was greater than 0.75.

Table B1 Sand and Underflow Summary

Translab?	muro.	•-	Lower CL		Upper CL	Lower CL		Upper CL	
Variable AS	TYPE	N O	Mean	Mean	Mean	Std Dev	Std Dev	Std Dev	Std Err
AS	SAND	2	-0.185	0.45	1.0853	0.0315	0.0707	2.2564	0.05
AS	UNDERFLOW Diff (1-2)	10	0.4376	0.4883	0.539	0.0487	0.0709	0.1294	0.0224
CD	SAND	2	-0.161	-0.038	0.084	0.0495	0.0709	0.1243	0.0549
CD		_	-0.087	0.04	0.1671	0.0063	0.0141	0.4513	0.01
CD	UNDERFLOW Diff (1-2)	10	-0.002	0.0591	0.12	0.0586	0.0851	0.1554	0.0269
CR	SAND	2	-0.159 -2.668	-0.019	0.1205	0.0565	0.0809	0.1419	0.0626
CR	UNDERFLOW	10		3.05	8.7678	0.2839	0.6364	20.308	0.45
CR		10	2.4997	2.896	3.2923	0.3811	0.554	1.0114	0.1752
	Diff (1-2)	2	-0.817	0.154	1.1253	0.3932	0.5628	0.9876	0.4359
CU	SAND	2	-71.91	10.05	92.005	4.0696	9.1217	291.07	6.45
CU	UNDERFLOW	10	2.0019	3.386	4.7701	1.3309	1.9349	3.5324	0.6119
CU	Diff (1-2)		0.763	6.664	12.565	2.389	3.4191	6.0002	2.6484
PB	SAND	2	-26.17	5.6	37.366	1.5774	3.5355	112.82	2.5
PB	UNDERFLOW	10	2.2494	2.937	3.6246	0.6611	0.9612	1.7547	0.3039
PB	Diff (1-2)		0.173	2.663	5.153	1.0081	1.4427	2.5319	1.1175
HG	SAND	2	-0.097	0.03	0.1571	0.0063	0.0141	0.4513	0.01
HG	UNDERFLOW	10	0.02	0.02	0.02	•	0		0
HG	Diff (1-2)		0.0023	0.01	0.0177	0.0031	0.0045	0.0078	0.0035
NI	SAND	2	-1.612	2.2	6.0119	0.1893	. 0.4243	13.538	0.3
NI	UNDERFLOW	10	2.1989	2.578	2.9571	0.3645	0.5299	0.9674	0.1676
NI	Diff (1-2)		-1.276	-0.378	0.52	0.3636	0.5203	0.9131	0.403
SE	SAND	2	0.1	0.1	0.1		0		0
SE	UNDERFLOW	10	0.1	0.1	0.1		0		0
SE	Diff (1-2)		•	0	•	•	0	•	
AG	SAND	2	-0.871	0.4	1.6706	0.0631	0.1414	4.5128	0.1
AG	UNDERFLOW	10	0.0615	0.08	0.0985	0.0178	0.0258	0.0471	0.0082
AG	Diff (1-2)		0.232	0.32	0.408	0.0356	0.051	0.0895	0.0395
ZN	SAND	2	-8.101	13.5	35.101	1.0726	2.4042	76.717	1.7
ZN	UNDERFLOW	10	4.9366	5.431	5.9254	0.4754	0.6912	1.2618	0.2186
ZN	Diff (1-2)		6.3362	8.069	9.8018	0.7015	1.004	1.7619	0.7777
BA	SAND	2	-4.294	4.6	13.494	0.4417	0.9899	31.589	0.7
BA	UNDERFLOW	10	3.7931	5.052	6.3109	1.2104	1.7598	3.2127	0.5565
BA	Diff (1-2)		-3.384	-0.452	2.4796	1.1868	1.6986	2.9809	1.3157
pcb_1242	SAND	2	-559.8	444	1447.8	49.845	111.72	3565.1	79
pcb_1242	UNDERFLOW	10	126.31	144.03	161.75	17.035	24.767	45.214	7.8319
pcb_1242	Diff (1-2)		226.74	299.97	373.2	29.646	42.429	74.461	32.866
pcb_1260	SAND	2	-71.36	21.4	114.16	4.6059	10.324	329.43	7.3
pcb_1260	UNDERFLOW	10	8.3325	11.91	15.487	3.4399	5.001	9.1298	1.5814
pcb_1260	Diff (1-2)	_	-0.45	9.49	19.43	4.024	5.7591	10.107	4.461
toc	SAND	2	-788.6	1435	3658.6	110.42	247.49	7897.4	175
toc	UNDERFLOW	10	539.92	1019	1498.1	460.65	669.71	1222.6	211.78
toc	Diff (1-2)	_	-688.8	416	1520.8	447.28	640.14	1123.4	495.85
OG	SAND	2	-122.2	43	208.18	8.2024	18.385	586.66	13
OG	UNDERFLOW	10	14.003	17.55	21.097	3.4102	4.9579	9.0512	1.5678
OG	Diff (1-2)		12.543	25.45	38.357	5.2251	7.4781	13.124	5.7925
TRPH	SAND	2	-97.5	10.5	118.5	5.3631	12.021	383.59	8.5
TRPH	UNDERFLOW	10	20.058	20.85	21.642	0.7613	1.1068	2.0206	0.35
TRPH	Diff (1-2)		-17.16	-10.35	-3.544	2.7555	3.9437	6.9209	3.0548

Table B2
Sand and Underflow T-Test Results

				man calcan MATANA Pad outs 6666 and		
	Variable	Method	Variances	DF	t Value	Pr > t
	AS	Pooled	Equal	10	-0.70	0.5012
	AS	Satterthwaite	Unequal	1.44	-0.70	0.5803
	CD	Pooled	Equal	10	-0.30	0.7669
	CD	Satterthwaite	Unequal	9.95	-0.66	0.5215
	CR	Pooled	Equal	10	0.35	0.7312
	CR	Satterthwaite	Unequal	1.32	0.32	0.7928
	CU	Pooled	Equal	10	2.52	0.0306
	CU	Satterthwaite	Unequal	1.02	1.03	0.4886
	PB	Pooled	Equal	10	2.38	0.0384
	PB	Satterthwaite	Unequal	1.03	1.06	0.4782
	HG	Pooled	Equal	10	2.89	0.0162
	HG	Satterthwaite	Unequal	1	1.00	0.5000
	NI	Pooled	Equal	10	-0.94	0.3704
	NI	Satterthwaite	Unequal	1.7	-1.10	0.4026
	SE	Pooled	Equal	10		
	SE	Satterthwaite	Unequal	10		
	AG	Pooled	Equal	10	8.10	<.0001
1	AG	Satterthwaite	Unequal	1.01	3.19	0.1908
	ZN	Pooled	Equal	10	10.38	<.0001
	ZN	Satterthwaite	Unequal	1.03	4.71	0.1273
	BA	Pooled	Equal	10	-0.34	0.7383
·	BA	Satterthwaite	Unequal	2.55	-0.51	0.6536
	pcb_1242	Pooled	Equal	10	9.13	<.0001
	pcb_1242	Satterthwaite	Unequal	1.02	3.78	0.1609
	pcb_1260	Pooled	Equal	10	2.13	0.0593
	pcb_1260	Satterthwaite	Unequal	1.1	1.27	0.4103
	toc	Pooled	Equal	10	0.84	0.4211
	toc	Satterthwaite	Unequal	4.9	1.51	0.1915
·	OG	Pooled	Equal	10	4.39	0.0013
	OG	Satterthwaite	Unequal	1.03	1.94	0.2970
	TRPH	Pooled	Equal	10	-3.39	0.0069
	TRPH	Satterthwaite	Unequal	1	-1.22	0.4375

Table B3		
Sand and Underflo	w Equality of Varia	ances Test Results

Var	iable Method		Num DF	Den DF	F Value	Pr > F
AS.	Folded		9	1	1.00	1.0000
CD	Folded	F	9	1	36.23	0.2566
CR	Folded	F	1	. 9	1.32	0.5606
CU	Folded	F	1	9	22.22	0.0022
PB	Folded	F	1 .	9	13.53	0.0102
HG	Folded	F	1	9	Infty	<.0001
NI	Folded	F	9	1	1.56	1.0000
SE	Folded	F	1	9		
AG	Folded	F	1	9	30.00	0.0008
zn	Folded	F	1	9	12.10	0.0139
BA	Folded	F	9	1	3.16	0.8250
pcb	1242 Folded	F	1	9	20.35	0.0029
pcb		F	1	9	4.26	0.1380
toc	Folded	F	9	1	7.32	0.5595
OG	Folded	F	1	9	13.75	0.0097
TRP	H Folded	F	1	9	117.96	<.0001

Table B4
Fines (Silt/Clay) and Overflow Summary

AS FINES AS OVERFLOW AS Diff (1- CD FINES CD OVERFLOW CD Diff (1- CR FINES CR OVERFLOW CR Diff (1- CU FINES CU OVERFLOW CU Diff (1- PB FINES PB OVERFLOW HG DIFF (1- HG FINES NI OVERFLOW MI DIFF (1- NI FINES NI OVERFLOW NI DIFF (1- SE FINES SE OVERFLOW SE DIFF (1- AG FINES AG OVERFLOW DIFF (1- AG FINES AG OVERFLOW DIFF (1- EN FINES AN OVERFLOW DIFF (1- EN FINES DOVERFLOW DO	N	Lower CL Mean	Mean	Upper CL Mean	Lower CL Std Dev	Std Dev	Upper CL Std Dev	Std Err
AS OVERFLOW AS Diff (1-: CD FINES CD OVERFLOW CD Diff (1-: CR FINES CR OVERFLOW CR Diff (1-: CU FINES CU OVERFLOW CU Diff (1-: PB FINES PB OVERFLOW PB Diff (1-: HG FINES HG OVERFLOW NI DIFF (1-: SE FINES NI OVERFLOW NI DIFF (1-: SE FINES SE OVERFLOW NI DIFF (1-: AG FINES AG OVERFLOW AG DIFF (1-: AG FINES AG OVERFLOW DIFF (1-: AG FINES BA OVERFLOW DIFF (1-: DAG FINES DOVERFLOW DAG		Mean	Mean	Mean	Std Dev	Stu Dev	ard bev	Std EII
AS Diff (1-: CD FINES CD OVERFLOW CD Diff (1-: CR FINES CR OVERFLOW CR Diff (1-: CU FINES CU OVERFLOW CU Diff (1-: PB FINES PB OVERFLOW PB Diff (1-: HG FINES HG OVERFLOW NI Diff (1-: SE FINES NI OVERFLOW NI Diff (1-: SE FINES SE OVERFLOW AG Diff (1-: AG FINES AG OVERFLOW AG Diff (1-: ZN FINES AG OVERFLOW DIFF (1-: ZN FINES AG OVERFLOW DIFF (1-: ZN FINES DIFF (1-: ZN DIFF (1-: ZN FINES DIFF (1-: ZN DIFF (1	2	4.4147	5.05	5.6853	0.0315	0.0707	2.2564	0.05
CD FINES CD OVERFLOW CD Diff (1-: CR FINES CR OVERFLOW CR Diff (1-: CU FINES CU OVERFLOW CU Diff (1-: PB FINES PB OVERFLOW HG Diff (1-: NI FINES NI OVERFLOW NI DIff (1-: NI FINES NI OVERFLOW SE FINES SE OVERFLOW SE DIFF (1-: AG FINES AG OVERFLOW SE DIFF (1-: AG FINES AG OVERFLOW SE DIFF (1-: AG FINES BA OVERFLOW ZN DIFF (1-: BA FINES BA OVERFLOW DIFF (1-: BA FINES BA DIFF (1-	W 10	3.1251	3.445	3.7649	0.3076	0.4472	0.8165	0.1414
CD OVERFLOW CD Diff (1-: CR FINES CR OVERFLOW CR Diff (1-: CU FINES CU OVERFLOW CU Diff (1-: PB FINES PB OVERFLOW PB Diff (1-: NI FINES NI OVERFLOW NI DIFF (1-: NI FINES NI OVERFLOW NI DIFF (1-: SE FINES SE OVERFLOW SE DIFF (1-: AG FINES AG OVERFLOW AG DIFF (1-: AG FINES AG OVERFLOW DIFF (1-: AG FINES BA OVERFLOW DIFF (1-: DA FINES BA OVERFLOW DIFF (1-: DA FINES BA OVERFLOW DIFF (1-: DA FINES DA OVERFLOW DIFF (1-: DA FINES DA OVERFLOW DIFF (1-: DA FINES DA OVERFLOW DIFF (1-: DCD 1242 FINES DCD 1242 OVERFLOW DCD 1242 DIFF (1-: DCD 1260 FINES DCD 1260 OVERFLOW DCD 1260 FINES DCD 1260 OVERFLOW DCD 1260	2)	0.8717	1.605	2.3383	0.2969	0.4249	0.7456	0.3291
CD Diff (1-: CR FINES CR OVERFLOW CR Diff (1-: CU FINES CU OVERFLOW CU Diff (1-: PB FINES PB OVERFLOW PB Diff (1-: HG FINES NI OVERFLOW NI Diff (1-: NI FINES NI OVERFLOW NI Diff (1-: SE FINES SE OVERFLOW AG Diff (1-: AG FINES AG OVERFLOW AG Diff (1-: AG FINES AG OVERFLOW DIFF (1-: AG FINES AG OVERFLOW DIFF (1-: AG FINES AG OVERFLOW DIFF (1-: DA FINES BA OVERFLOW DIFF (1-: DA FINES BA OVERFLOW DIFF (1-: DA FINES BA OVERFLOW DIFF (1-: DED 1242 FINES DED 1242 OVERFLOW DIFF (1-: DED 1260 FINES DED 1260 FINES DED 1260 OVERFLOW DIFF (1-: DED 1260 OVERFLOW DIFF (1-: DED 1260 FINES DED 1260 OVERFLOW DIFF (1-: DED 1260	2	0.6562	1.355	2.0538	0.0347	0.0778	2.482	0.055
CD Diff (1-CR FINES) CR OVERFLOW CR Diff (1-CU FINES) CU OVERFLOW CU Diff (1-CU FINES) CO OVERFLOW CU Diff (1-CU FINES) CO OVERFLOW CO DIFF (1-CU FINES) CO OVERFLOW	W 10		0.8208	0.8945	0.0709	0.1031	0.1882	0.0326
CR OVERFLOW CR Diff (1-: CU FINES CU OVERFLOW CU Diff (1-: PB FINES PB OVERFLOW PB Diff (1-: HG FINES HG OVERFLOW NI Diff (1-: SE FINES SE OVERFLOW NI Diff (1-: SE FINES SE OVERFLOW AG DIFF (1-: AG FINES AG OVERFLOW AG DIFF (1-: AG FINES BA OVERFLOW DIFF (1-: DAG FINES CN OVERFLOW DIFF (1-: DAG FINES DIFF (1-: DAG FINES DIFF (1-: DAG FINES DVERFLOW DIFF (1-: DCD 1242 FINES DCD 1242 DIFF (1-: DCD 1260 FINES DCD 1260 OVERFLOW DCD 1260 OVERFLOW DCD 1260 DIFF (1-: DC		0.3602	0.5342	0.7082	0.0705	0.1008	0.177	0.0781
CR Diff (1-: CU FINES CU OVERFLOW CU Diff (1-: PB FINES PB OVERFLOW PB Diff (1-: HG FINES HG OVERFLOW HG Diff (1-: NI FINES NI OVERFLOW NI Diff (1-: SE FINES SE OVERFLOW SE Diff (1-: AG FINES AG OVERFLOW ZN Diff (1-: ZN FINES ZN OVERFLOW ZN Diff (1-: BA FINES BA OVERFLOW DA OVERFLOW DA OVERFLOW DA OVERFLOW DA DIFF (1-: DA FINES DA OVERFLOW DA DIFF (1-: DED 1242 DIFF (1-: DED 1260 FINES DED 1260 OVERFLOW DED 1260 OVERFLOW DED 1260 DIFF (1-: DED 1260 OVERFLOW DED 1260	2	50.09	79.95	109.81	1.4827	3.3234	106.05	2.35
CU FINES CU OVERFLOW CU Diff (1-: PB FINES PB OVERFLOW PB Diff (1-: HG FINES HG OVERFLOW HG Diff (1-: NI FINES NI OVERFLOW NI Diff (1-: SE FINES SE OVERFLOW SE Diff (1-: AG FINES AG OVERFLOW AG DIFF (1-: AG FINES AG OVERFLOW ZN DIFF (1-: ZN FINES ZN OVERFLOW ZN DIFF (1-: BA FINES BA OVERFLOW BA OVERFLOW DIFF (1-: BA FINES BA OVERFLOW DIFF (1-: BC FINES DCD 1260 OVERFLOW DIFF (1-: BC FINES DCD 1260 OVERFLOW DIFF (1-: BC FINES DCD 1260 OVERFLOW DIFF (1-: BC FINES	W 10	43.629	48.75	53.871	4.9243	7.1592	13.07	2.2639
CU OVERFLOW CU Diff (1-: PB FINES PB OVERFLOW PB Diff (1-: HG FINES HG OVERFLOW HG Diff (1-: NI FINES NI OVERFLOW NI Diff (1-: SE FINES SE OVERFLOW SE Diff (1-: AG FINES AG OVERFLOW ZN Diff (1-: ZN FINES ZN OVERFLOW ZN Diff (1-: EN FINES EN OVERFLOW DIFF (1-: EN FINES EN FINES EN FINES EN FINES EN OVERFLOW DIFF (1-: EN FINES EN FINES EN FINES EN FINES EN FINES	2)	19.338	31.2	43.062	4.802	6.8726	12.061	5.3235
CU Diff (1-: PB FINES PB OVERFLOW PB Diff (1-: HG FINES HG OVERFLOW HG Diff (1-: NI FINES NI OVERFLOW NI Diff (1-: SE FINES SE OVERFLOW SE Diff (1-: AG FINES AG OVERFLOW ZN Diff (1-: ZN FINES ZN OVERFLOW ZN Diff (1-: BA FINES BA OVERFLOW DIFF (1-: BA FINES BA OVERFLOW DIFF (1-: BA FINES BA OVERFLOW DIFF (1-: DED 1242 FINES DED 1242 PINES DED 1242 PINES DED 1240 OVERFLOW DED 1240 OVERFLOW DED 1240 OVERFLOW DED 1260 FINES DED 1260 OVERFLOW DE	. 2	55.555	75.25	94.945	0.978	2.192	69.948	1.55
PB FINES PB OVERFLOW PB Diff (1-: HG FINES HG Diff (1-: NI FINES NI OVERFLOW NI Diff (1-: SE FINES SE OVERFLOW AG FINES AG OVERFLOW AG Diff (1-: ZN FINES ZN DVERFLOW ZN DVERFLOW BA FINES BA OVERFLOW BA DIFF (1-: Pcb_1242 OVERFLOW Pcb_1242 DVERFLOW Pcb_1260 FINES Pcb_1260 OVERFLOW Pcb_1260	W 10	46.111	50	53.889	3.7398	5.4371	9.9261	1.7194
PB FINES PB OVERFLOW PB Diff (1-: HG FINES HG Diff (1-: NI FINES NI OVERFLOW NI Diff (1-: SE FINES SE OVERFLOW AG FINES AG OVERFLOW AG Diff (1-: ZN FINES ZN DVERFLOW ZN DVERFLOW BA FINES BA OVERFLOW BA DIFF (1-: Pcb_1242 OVERFLOW Pcb_1242 DVERFLOW Pcb_1260 FINES Pcb_1260 OVERFLOW Pcb_1260		16.268	25.25	34.232	3.6365	5.2045	9.1335	4.0314
PB Diff (1-: HG FINES HG OVERFLOW HG Diff (1-: NI FINES NI OVERFLOW NI Diff (1-: SE FINES SE OVERFLOW SE Diff (1-: AG FINES AG OVERFLOW AG Diff (1-: ZN FINES ZN OVERFLOW ZN Diff (1-: BA FINES BA OVERFLOW DA OVERFLOW DA DIFF (1-: BA FINES DA OVERFLOW DA DIFF (1-: DED 1242 DIFF (1-: DED 1242 DIFF (1-: DED 1260 FINES DED 1260 OVERFLOW DED 1260 DIFF (1-: DED 1260 OVERFLOW DED 1260 DIFF (1-: DED 1260 OVERFLOW DED 1260 DIFF (1-: DED 1260 DIFF (1-: DED 1260 OVERFLOW DED 1260 DIFF (1-: DED 1260 DIFF (1-	. 2		101.2	136.78	1.7667	3.9598	126.36	2.8
PB Diff (1-: HG FINES HG OVERFLOW HG Diff (1-: NI FINES NI OVERFLOW NI Diff (1-: SE FINES SE OVERFLOW SE Diff (1-: AG FINES AG OVERFLOW AG Diff (1-: ZN FINES ZN OVERFLOW ZN Diff (1-: BA FINES BA OVERFLOW DA OVERFLOW DA DIFF (1-: BA FINES DA OVERFLOW DA DIFF (1-: DED 1242 DIFF (1-: DED 1242 DIFF (1-: DED 1260 FINES DED 1260 OVERFLOW DED 1260 DIFF (1-: DED 1260 OVERFLOW DED 1260 DIFF (1-: DED 1260 OVERFLOW DED 1260 DIFF (1-: DED 1260 DIFF (1-: DED 1260 OVERFLOW DED 1260 DIFF (1-: DED 1260 DIFF (1-	₩ 10		59.59	64.809	5.0183	7.2957	13.319	2.3071
HG FINES HG OVERFLOW HG Diff (1-: NI FINES NI OVERFLOW NI Diff (1-: SE FINES SE OVERFLOW SE Diff (1-: AG FINES AG OVERFLOW ZN Diff (1-: ZN FINES ZN OVERFLOW ZN Diff (1-: BA FINES BA OVERFLOW BA DIFF (1-: BA FINES BA OVERFLOW DIFF (1-: BCD 1240 OVERFLOW DIFF (1-: BCD 1260 OVERFLOW DIFF (1-		29.47	41.61	53.75	4.9146	7.0337	12.344	5.4483
HG OVERFLOW HG Diff (1-: NI FINES NI OVERFLOW NI Diff (1-: SE FINES SE OVERFLOW SE Diff (1-: AG FINES AG OVERFLOW ZN Diff (1-: ZN FINES ZN OVERFLOW ZN Diff (1-: BA FINES BA OVERFLOW BA DIff (1-: BA FINES BA OVERFLOW DOURT (1-: BC DIFF	,		3.45	3.5771	0.0063	0.0141	0.4513	0.01
HG Diff (1-: NI FINES NI OVERFLOW NI Diff (1-: SE FINES SE OVERFLOW SE Diff (1-: AG FINES AG OVERFLOW ZN Diff (1-: ZN FINES ZN OVERFLOW ZN Diff (1-: BA FINES BA OVERFLOW BA OVERFLOW DOWN DIFF (1-: BA FINES BA OVERFLOW DOWN DIFF (1-: BA FINES BA OVERFLOW DOWN DIFF (1-: BA FINES BA OVERFLOW DIFF (1-: DED 1242 DIFF (1-: DED 1242 DIFF (1-: DED 1260 FINES DED 1260 OVERFLOW DIFF (1-: DED 1260 OVERFLOW DIFF (1-: DED 1260 OVERFLOW DIFF (1-: DED 1260 DIFF			1.294	1.4299	0.1307	0.19	0.3468	0.0601
NI FINES NI OVERFLOW NI Diff (1-: SE FINES SE OVERFLOW SE Diff (1-: AG FINES AG OVERFLOW AG Diff (1-: ZN FINES ZN OVERFLOW ZN Diff (1-: BA FINES BA OVERFLOW BA DIFF (1-: BA FINES BA OVERFLOW DEB 1242 FINES PCb 1242 FINES PCb 1242 OVERFLOW PCB 1260 FINES PCB 1260 FINES PCB 1260 OVERFLOW PCB 1260 FINES PCB 1260 OVERFLOW PCB 1260 OVERFLO		1.8448	2.156	2.4672	0.126	0.1803	0.3164	0.1397
NI OVERFLOW NI Diff (1-: SE FINES SE OVERFLOW SE Diff (1-: AG FINES AG OVERFLOW AG Diff (1-: ZN FINES ZN OVERFLOW ZN Diff (1-: BA FINES BA OVERFLOW BA DIFF (1-: BC OVERFLOW BC DIFF (1-: BC DIFF	. 2,		27.1	33.453	0.3155	0.7071	22.564	0.5
NI Diff (1-: SE FINES SE OVERFLOW SE Diff (1-: AG FINES AG OVERFLOW AG Diff (1-: ZN FINES ZN OVERFLOW ZN Diff (1-: BA FINES BA OVERFLOW BA Diff (1-: BA FINES BA OVERFLOW BA Diff (1-: pcb_1242 FINES pcb_1242 OVERFLOW pcb_1242 Diff (1-: pcb_1260 FINES pcb_1260 OVERFLOW pcb_1260 FINES pcb_1260 OVERFLOW pcb_1260 Diff (1-: pcb_1260 OVERFLOW pcb_1260 OVERFLOW pcb_1260 Diff (1-: pcb_1260 OVERFLOW pcb_1260 DIFf (1-: DCC DIFF (18.98	20.458	1.4207	2.0655	3.7708	0.6532
SE FINES SE OVERFLOW SE Diff (1-: AG FINES AG OVERFLOW AG Diff (1-: ZN FINES ZN OVERFLOW ZN Diff (1-: BA FINES BA OVERFLOW BA Diff (1-: pcb_1242 FINES pcb_1242 OVERFLOW pcb_1242 Diff (1-: pcb_1260 FINES pcb_1260 FINES pcb_1260 OVERFLOW pcb_1260 Diff (1-: pcb_1260 FINES pcb_1260 OVERFLOW pcb_1260 Diff (1-: pcb_1260 Diff (1-: pcb_1260 OVERFLOW pcb_1260 Diff (1-: pcb_1260 Diff (4.7162	8.12	11.524	1.378	1.9722	3.4611	1.5277
SE OVERFLOW SE Diff (1-: AG FINES AG OVERFLOW AG Diff (1-: ZN FINES ZN OVERFLOW ZN Diff (1-: BA FINES BA OVERFLOW BA Diff (1-: pcb_1242 FINES pcb_1242 OVERFLOW pcb_1242 Diff (1-: pcb_1260 FINES pcb_1260 FINES pcb_1260 OVERFLOW pcb_1260 Diff (1-: pcb_1260 FINES toc OVERFLOW DOWNERLOW DO	,		1.1	2.3706	0.0631	0.1414	4.5128	0.1
SE Diff (1-: AG FINES AG OVERFLOW AG Diff (1-: ZN FINES ZN OVERFLOW ZN Diff (1-: BA FINES BA OVERFLOW BA Diff (1-: pcb_1242 FINES pcb_1242 OVERFLOW pcb_1242 Diff (1-: pcb_1260 FINES pcb_1260 FINES pcb_1260 OVERFLOW pcb_1260 Diff (1-: pcb_1260 OVERFLOW pcb_1260 OVERFLOW pcb_1260 OVERFLOW pcb_1260 Diff (1-: pcc_ FINES toc OVERFLOW toc Diff (1-: OG FINES			0.6489	0.7399	0.0875	0.1272	0.2321	0.0402
AG FINES AG OVERFLOW AG Diff (1-: ZN FINES ZN OVERFLOW ZN Diff (1-: BA FINES BA OVERFLOW BA Diff (1-: pcb_1242 FINES pcb_1242 OVERFLOW pcb_1242 Diff (1-: pcb_1260 FINES pcb_1260 OVERFLOW pcb_1260 OVERFLOW pcb_1260 Diff (1-: toc FINES toc OVERFLOW toc Diff (1-: OG FINES		0.2291	0.4511	0.6731	0.0899	0.1287	0.2258	0.0997
AG OVERFLOW AG Diff (1-: ZN FINES ZN OVERFLOW ZN Diff (1-: BA FINES BA OVERFLOW BA Diff (1-: pcb_1242 FINES pcb_1242 OVERFLOW pcb_1242 Diff (1-: pcb_1260 FINES pcb_1260 OVERFLOW pcb_1260 Diff (1-: pcb_1260 FINES toc OVERFLOW pcb_1260 Diff (1-: coc Diff (1-: OG FINES	,		0.8995	2.1765	0.0634	0.1421	4.5353	0.1005
AG Diff (1-2N FINES ZN OVERFLOW ZN Diff (1-3BA FINES BA OVERFLOW BA Diff (1-25Pcb_1242 OVERFLOW pcb_1242 Diff (1-25Pcb_1260 FINES pcb_1260 OVERFLOW pcb_1260 Diff (1-25Pcb_1260 OVERFLOW pcb_1260 OVERFLOW pcb_1260 OVERFLOW pcb_1260 OVERFLOW pcb_1260 OVERFLOW pcb_1260 OVERFLOW Diff (1-25Pcb_1260 OVERFLOW pcb_1260 OVERFL			0.5292	0.6046	0.0725	0.1055	0.1925	0.0333
ZN FINES ZN OVERFLOW ZN Diff (1-: BA FINES BA OVERFLOW BA Diff (1-: pcb_1242 FINES pcb_1242 OVERFLOW pcb_1242 Diff (1-: pcb_1260 FINES pcb_1260 OVERFLOW pcb_1260 Diff (1-: toc FINES toc OVERFLOW toc Diff (1-: OG FINES		0.181	0.3703	0.5596	0.0766	0.1097	0.1925	0.085
ZN OVERFLOW ZN Diff (1-2 BA FINES BA OVERFLOW BA Diff (1-2 pcb_1242 FINES pcb_1242 OVERFLOW pcb_1242 Diff (1-2 pcb_1260 FINES pcb_1260 OVERFLOW pcb_1260 Diff (1-2 toc FINES toc OVERFLOW toc Diff (1-2 OG FINES	2		148.56	1996.6	91.769	205.69	6563.6	145.45
ZN Diff (1-: BA FINES BA OVERFLOW BA Diff (1-: pcb_1242 FINES pcb_1242 OVERFLOW pcb_1242 Diff (1-: pcb_1260 FINES pcb_1260 OVERFLOW pcb_1260 Diff (1-: toc FINES toc OVERFLOW toc Diff (1-: OG FINES			116.94	127.36	10.022	14.57	26.599	4.6074
BA FINES BA OVERFLOW BA Diff (1-: pcb_1242 FINES pcb_1242 OVERFLOW pcb_1242 Diff (1-: pcb_1260 FINES pcb_1260 OVERFLOW pcb_1260 Diff (1-: toc FINES toc OVERFLOW toc Diff (1-: OG FINES		-83.15	31.615	146.38	46.463	66.497	116.7	51.509
BA OVERFLOW BA Diff (1-2) pcb_1242 FINES pcb_1242 OVERFLOW pcb_1242 Diff (1-2) pcb_1260 FINES pcb_1260 OVERFLOW pcb_1260 Diff (1-2) toc FINES toc OVERFLOW toc Diff (1-2) OG FINES	2		104.5	136.27	1.5774	3.5355	112.82	2.5
BA Diff (1-: pcb_1242 FINES pcb_1242 OVERFLOW pcb_1242 Diff (1-: pcb_1260 FINES pcb_1260 OVERFLOW pcb_1260 Diff (1-: toc FINES toc OVERFLOW toc Diff (1-: OG FINES			79.35	86.732	7.0976	10.319	18.838	3.2631
pcb_1242 FINES pcb_1242 OVERFLOW pcb_1242 Diff (1-: pcb_1260 FINES pcb_1260 OVERFLOW pcb_1260 Diff (1-: toc FINES toc OVERFLOW toc Diff (1-: OG FINES		8.1449	25.15	42.155	6.8843	9.8528	17.291	7.632
pcb_1242 OVERFLOW pcb_1242 Diff (1-: pcb_1260 FINES pcb_1260 OVERFLOW pcb_1260 Diff (1-: toc FINES toc OVERFLOW toc Diff (1-: OG FINES	2		5927.5	7509.4	78.553	176.07	5618.4	124.5
pcb_1242 Diff (1-: pcb_1260 FINES pcb_1260 OVERFLOW pcb_1260 Diff (1-: toc FINES toc OVERFLOW toc Diff (1-: OG FINES			4037.9	4433.2	380.1	552.61	1008.8	174.75
pcb_1260 FINES pcb_1260 OVERFLOW pcb_1260 Diff (1-: toc FINES toc OVERFLOW toc Diff (1-: OG FINES		979.7	1889.6	2799.5	368.36	527.2	925.2	408.37
pcb_1260 Diff (1-: toc FINES toc OVERFLOW toc Diff (1-: OG FINES	2		317.5	336.56	0.9464	2.1213	67.692	1.5
pcb_1260 Diff (1-: toc FINES toc OVERFLOW toc Diff (1-: OG FINES			109.9	126.84	16.285	23.676	43.224	7.4871
toc OVERFLOW toc Diff (1-2 OG FINES	-2)	168.82	207.6	246.38	15.701	22.471	39.436	17.406
toc Diff (1-2	2	-66573	21100	108773	4353.6	9758.1	311382	6900
OG FINES	w 10	42701	46480	50259	3633.9	5283.1	9644.8	1670.6
	-2)	-35538	-2538.0	-15222	4112.4	5885.7	10329	4559.1
OG OVERFLOW	2	-859.2	475	1809.2	66.25	148.49	4738.4	105
	W 10		435	518.92	80.688	117.31	214.16	37.096
OG Diff (1-:	-2)	-168.5	40	248.47	84.397	120.79	211.98	93.563
TRPH FINES	2	-619.4	270	1159.4	44.167	98.995	3158.9	70
TRPH OVERFLOW	W 10		338	404.24	63.688	92.592	169.04	29.28
TRPH Diff (1-:	-2)	-228.9	-68	92.945	65.157	93.252	163.65	72.233

Table B5
Fines (Silt/Clay) and Overflow T-Test Results

Variable	Method	Variances	DF	t Value	Pr > t
	•	• • •			
AS	Pooled	Equal	10	4.88	0.0006
AS	Satterthwaite	Unequal	9.99	10.70	.<.0001
CD	Pooled	Equal	10	6.84	<.0001
CD	Satterthwaite	Unequal	1.8	8.36	0.0190
CR	Pooled	Equal	10	5.86	0.0002
CR	Satterthwaite	Unequal	3.39	9.56	0.0014
CU	Pooled	Equal	10	6.26	<.0001
CU	Satterthwaite	Unequal	4.26	10.91	0.0003
PB	Pooled	Equal	10	7.64	<.0001
PB	Satterthwaite	Unequal	2.68	11.47	0.0024
HG	Pooled	Equal	10	15.44	<.0001
HG	Satterthwaite	Unequal	9.44	35.40	<.0001
NI	Pooled	Equal	10	5.32	0.0003
NI	Satterthwaite	Unequal	5.53	9.87	0.0001
SE	Pooled	Equal	10	4.53	0.0011
SE	Satterthwaite	Unequal	1.35	4.19	0.0993
AG	Pooled	Equal	10	4.36	0.0014
AG	Satterthwaite	Unequal	1.23	3.50	0.1392
ZN	Pooled	Equal	10	0.61	0.5531
ZN	Satterthwaite	Unequal	1	0.22	0.8638
BA	Pooled	Equal	10	3.30	0.0081
BA	Satterthwaite	Unequal	5.53	6.12	0.0012
pcb 1242	Pooled	Equal	10	4.63	0.0009
pcb 1242	Satterthwaite	Unequal	6.16	8.81	0.0001
pcb 1260	Pooled	Equal	10	11.93	<.0001
pcb 1260	Satterthwaite	Unequal	9.6	27.19	<.0001
toc	Pooled	Equal	10	-5.57	0.0002
toc	Satterthwaite	Unequal	1.12	-3.57	0.1521
OG	Pooled	Equal	10	0.43	0.6781
OG	Satterthwaite	Unequal	1.26	0.36	0.7702
TRPH	Pooled	Equal	10	-0.94	0.3687
TRPH	Satterthwaite	Unequal	1.38	-0.90	0.4992

Table B6	
Fines (Silt/Clay) and Overflow Equality of Variances Test Resul	ts

Variable	Method	Num DF	Den DF	F Value	Pr > F
AS	Folded F	9	1	40.01	0.2443
CD	Folded F	9	1	1.76	1.0000
CR	Folded F	9	1	4.64	0.6930
CU	Folded F	9	1	6.15	0.6075
PB	Folded F	9	1	3.39	0.7990
HG	Folded F	9	1	180.47	0.1154
NI	Folded F	9	1	8.53	0.5201
SE	Folded F	1	9	1.24	0.5897
AG	Folded F	1	9	1.82	0.4214
ZN	Folded F	1	9	199.30	<.0001
BA	Folded F	9	1	8.52	0.5205
pcb 1242	Folded F	9	1	9.85	0.4854
pcb 1260	Folded F	9	1	124.57	0.1389
toc	Folded F	1	9	3.41	0.1956
OG ·	Folded F	1	9	1.60	0.4747
TRPH	Folded F	ī	9	1.14	0.6257

Table B7 Bulk and Feed Summary

			Lower CL		Upper CL	Lower CL		Upper CL	
Variable	TYPE	N	Mean	Mean	Mean	Std Dev	Std Dev	Std Dev	Std Err
AS	BULK	2	0.9294	2.2	3.4706	0.0631	0.1414	4.5128	0.1
AS	FEED	10	2.1377	2.805	3.4723	0.6416	0.9328	1.7028	0.295
AS	Diff		-2.134	-0.605	0.9242	0.6191	0.886	1.5549	0.6863
CD	BULK	2	0.5473	0.6045	0.6617	0.0028	0.0064	0.2031	0.0045
CD	FEED	10	0.4583	0.5809	0.7035	0.1179	0.1714	0.3128	0.0542
CD	Diff		-0.257	0.0236	0.3042	0.1179	0.1714	0.2853	0.0342
CR	BULK	2	18.364	29.8	41.236	0.5679	1.2728	40.615	0.1259
CR	FEED	10	29.449	38.44	47.431	8.6451	12.569	22.945	3.9745
CR	Diff		-29.23	-8.64	11.951	8.336	11.93	20.937	9.2412
CU	BULK	(1-2)	-37.08	32.8	102.68	3.4702	7.7782	248.2	5.5
CU	FEED	10	28.542	37.81	47.078	8.9111	12.955	23.651	4.0968
CU	Diff		-26.64	-5.01	16.623	8.7579	12.534	21.997	9.709
PB	BULK	2	33.535	43.7		0.5048			0.8
PB	FEED	10		41.69	53.865		1.1314	36.102	
PB PB			32.818		50.562	8.5304	12.402	22.641	3.9218
		(1-2)	-18.31	2.01	22.325	8.2244	11.771	20.657	9.1176
HG HG	BULK FEED	. 10	1.0215	1.085	1.1485	0.0032	0.0071	0.2256	0.005
			0.6547	0.8834	1.1121	0.2199	0.3198	0.5838	0.1011
HG	Diff		-0.322	0.2016	0.7252	0.212	0.3034	0.5324	0.235
NI	BULK	. 2	4.4469	10.8	17.153	0.3155	0.7071	22.564	0.5
NI	FEED	10	12.387	15.718	19.049	3.203	4.6566	8.5012	1.4726
NI	Diff		-12.55	-4.918	2.7162	3.0906	4.4233	7.7626	3.4263
SE	BULK	2	0.4931	0.4995	0.5059	0.0003	0.0007	0.0226	0.0005
SE	FEED	10	0.3762	0.5116	0.647	0.1302	0.1892	0.3455	0.0598
SE	Diff		-0.322	-0.012	0.2977	0.1254	0.1795	0.315	0.1391
AG	BULK	2	-2.048	0.4995	3.0471	0.1265	0.2835	9.0481	0.2005
AG	FEED	(1.2)	0.2617	0.3447	0.4277	0.0798	0.116	0.2117	0.0367
AG ZN	Diff ((1-2)	-0.09	0.1548 76.1	0.3997	0.0992	0.1419	0.2491	0.1099
ZN	FEED	10	49.417 62.753	81.4	102.78	1.325	2.9698	94.768	2.1
ZN	Diff (-48.01	-5.3	100.05 37.412	17.93 17.291	26.067 24.747	47.589 43.43	8.2432 19.169
BA	BULK	(1-2)	12.99	42.85	72.71	1.4827			
BA	FEED	10	46.266	61.12	75.974	14.283	3.3234	106.05 37.908	2.35 6.5664
BA	Diff (-52.32	-18.27	15.777	13.784	19.727	34.62	15.281
pcb 1242	BULK	2	3341.5	3754.5	4167.5	20.506	45.962	1466.7	32.5
pcb 1242	FEED	10	2356	2713.8	3071.6	344.04	500.17	913.12	158.17
pcb 1242	Diff (221.36	1040.7	1860	331.7	474.73	833.12	367.72
pcb_1242 pcb_1260	BULK	2	2.152	39	75.848	1.8298	4.1012	130.87	2.9
pcb_1260 pcb_1260	FEED	10	114.55	144.96	175.37	29.245	42.517	77.62	13.445
pcb_1260		(1-2)	-175.6	-106	-36.31	28.198	40.356	70.822	31.26
toc	BULK	2	12053	27300	42547	757.14	1697.1	54153	1200
toc	FEED	10	20471	26500	32529	5797	8427.9	15386	2665.1
toc		(1-2)	-13030	800	14630	5599.1	8013.4	14063	6207.1
OG	BULK	2	92.938	220	347.06	6.3095	14.142	451.28	10
OG	FEED	10	270.85	332	393.15	58.795	85.479	156.05	27.031
OG OG		(1-2)	-252.2	-112	28.171	56.747	81.216	142.53	62.909
TRPH	BULK	2	121.47	185	248.53	3.1548	7.0711	225.64	5
TRPH	FEED	10	209.04	259	308.96	48.034	69.833	127.49	22.083
TRPH		(1-2)	-188.4	-74	40.406	46.316	66.287	116.33	51.346
	\	(= == /	100.4	, 4	40.400	40.510	30.207	110.33	31.340

Table B8 Bulk and Feed T-Test Results

Variable	Method	Variances	DF	t Value	Pr > t
AS	Pooled	Equal	10	-0.88	0.3987
AS	Satterthwaite	Unequal	10	-1.94	0.0807
CD	Pooled	Equal	10	0.19	0.8551
CD	Satterthwaite	Unequal	9.12	0.43	0.6744
CR	Pooled	Equal	10	-0.93	0.3718
CR	Satterthwaite	Unequal	9.72	-2.12	0.0608
CU	Pooled	Equal	10	-0.52	0.6171
CU	Satterthwaite	Unequal	2.34	-0.73	0.5313
PB	Pooled	Equal	10	0.22	0.8300
PB .	Satterthwaite	Unequal	9.61	0.50	0.6268
HG	Pooled	Equal	10	0.86	0.4110
HG	Satterthwaite	Unequal	9.04	1.99	0.0775
NI	Pooled	Equal	10	-1.44	0.1817
NI	Satterthwaite	Unequal	10	-3.16	0.0101
SE	Pooled	Equal	10	-0.09	0.9324
SE	Satterthwaite	Unequal	9	-0.20	0.8443
AG	Pooled	Equal	10	1.41	0.1894
AG	Satterthwaite	Unequal	1.07	0.76	0.5798
ZN	Pooled	Equal	10	-0.28	0.7878
ZN	Satterthwaite	Unequal	9.83	-0.62	0.5474
BA	Pooled	Equal	10	-1.20	0.2594
BA	Satterthwaite	Unequal	9.98	-2.62	0.0257
pcb_1242	Pooled	Equal	10	2.83	0.0178
pcb_1242	Satterthwaite	Unequal	9.62	6.45	<.0001
pcb_1260	Pooled	Equal	10	-3.39	0.0069
pcb_1260	Satterthwaite	Unequal	9.67	-7.70	<.0001
toc	Pooled	Equal	10	0.13	0.9000
toc	Satterthwaite	Unequal	9.5	0.27	0.7902
OG	Pooled	Equal	10	-1.78	0.1054
QG	Satterthwaite	Unequal	9.95	-3.89	0.0031
TRPH	Pooled	Equal	10	-1.44	0.1801
TRPH	Satterthwaite	Unequal	9.72	-3.27	0.0088

Table B9 Bulk and Feed Equality of Variances Test Results

Variable	Method	Num DF	Den DF	F Value	Pr > F
AS	Folded F	. 9	1	43.50	0.2343
CD	Folded F	9	1	725.01	0.0576
CR	Folded F	9	1	97.51	0.1569
CU	Folded F	9	1	2.77	0.8739
PB	Folded F	9	1	120.16	0.1414
HG	Folded F	9	1	2044.94	0.0343
NI	Folded F	9	1	43.37	0.2347
SE	Folded F	9	1	71613.0	<.0001
AG	Folded F	1	9	5.98	0.0741
ZN	Folded F	9	1	77.04	0.1764
BA	Folded F	9	1	39.04	0.2472
pcb 1242	Folded F	9	1	118.42	0.1424
pcb 1260	Folded F	9	1	107.47	0.1495
toc	Folded F	9	1	24.66	0.3102
OG	Folded F	9	1	36.53	0.2555
TRPH	Folded F	9	1	97.53	0.1569

Appendix C Chemical Analysis Sample Listing, Data Validation, Raw Data Sheets

Table C1					
Green Bay Physical Separat	ion Samples - EC	B Lab ID #	s		
Sample/Analyte	TOC/TVS/O&G/TRPH	PCBs	PAHs	Metals	Soot
	De	mo			
GB Underflow 1400-1715 (-1, -2) (solids)	90838-47	90808-17	N/A	90823-32	
GB Feed 1400-1715-1 (solids)	90848-52	90818-22	N/A	90833-37	
GB Feed 1400-1715-2 (solids)	90954-58	90924-28	N/A	90939-43	
GB Overflow 1400-1715 (-1, -2) (solids)	90944-53	90914-23	N/A	90929-38	
GB Overflow 1400-1715 -1 (supernatant)		90853-57	N/A	90904,6,8,10,12	
GB Overflow 1400-1715 -2 (supernatant)		90883-87	N/A	90905,7,9,11,13	
GB Feed 1400-1715 -1 (supernatant)		90858-62	N/A	90894,6,8,900,02	
GB Feed 1400-1715 -2 (supernatant)		90888-92	N/A	90895,7,9,901,03	
Supply Water		90789	N/A	90893	
MetPro Underflow	92103-4	92099-100	N/A	92107-8	
MetPro Overflow	92105-6	92101-2	N/A	92109-10	
MetPro Underflow Supernatant		92111	N/A	92113	
MetPro Overflow Supernatant		92112	N/A	92114	
Soot Samples					92455-514
Carbon Treated Supernatant		92412	N/A	92413	
	Cell 4 Chara	ecterization			
Cell 4, Bulk A,B	89589-90	89587-88	89591-92	89585-6	90795-802
Cell 4 Sand 1,2	93027-28	93023-24	N/A	93019-20	
Silt/Clay 1,2	93029-30	93025-26	N/A	93021-22	
Clay 1,2 Cell 4	94943-4	94940-1	N/A	94937-8	
Silt Cell 4	94945	94942	N/A	94939	
Soot Samples	.,				89607-18
	Cell 5 Chara	cterization			
Bulk 1,2,3	89331-33	89343-45	89349-51	89337-39	
Bulk 4,5	89334-36	89346-48	89352-54	89340-42	
Bulk 1,2,3 <75um	89375-76	89379-80	89383-84	89371-72	
Bulk 1,2,3 >75um	89377-78	89381-82	89385-86	89373-74	
Bulk 1,2,3 >2.0 sp.gr.	89729	89725	89727	89723	
Bulk 1,2,3 <2.0 sp.gr.	89730	89726	89728	89724	
Wastewater		96653		96652	

Green Bay Physical Separation Samples - ECB Lat Sample/Analyte							
	s - ECB Lab ID #s						
	Metals	No. of Samples	No. of Analytes	Precision 1	Accuracy 2	Completeness 3	Total Tests 4
DEMO	GROUP TOTALS			%6.66	97.3%	97.1%	
		•			TESTS COMPLETED		
GB Underflow 1400-1715 (-1, -2) (solids)	90823-32	10		140	140	140	140
GB Feed 1400-1715-1 (solids) 90(90833-37		-			70	70
GB Feed 1400-1715-2 (solids) 909	90939-43	2	15	75			75
GB Overflow 1400-1715 (-1, -2) (solids) 90929-38		10	15	150	150	150	150
GB Overflow 1400-1715 -1 900 (supernatant) GB Overflow 1400-1715 -2 900 (supernatant)	90904,6,8,10,12						
	0894,6,8,900,02						
0-1715 -2 (supernatant)	7,9,901,03						
Supply Water 900	90893	21	15	315	294	294	315
Carbon Treated Supernatant 92/	92413	_	14	13	41	13	41
95	GROUP SUM			763	743		764
CELL 4 CHARACTERIZATION					100.0% TESTS COMPLETED	92.1%	
Cell 4, Bulk A,B	89585-6	2		28			30
Cell 4 Sand 1,2 93(93019-20						26
Silt/Clay 1,2	93021-22						26
Clay 1,2 Cell 4 949	94937-38	2	15	30	30	30	30
Silt Cell 4 949	94939						15
49	GROUP SUM			117		211	127

Table C2 (Concluded)							
Green Bay Physical Separation Samples - ECB Lab	ples - ECB Lab ID #s						
Sample/Analyte	Metals	No. of Samples	No. of Analytes	Precision 1 Accuracy 2		Completeness 3 Total Tests 4	Total Tests 4
CELL 5 CHARACTERIZATION	GROUP TOTALS			%9'.16	100.0% TESTS COMPLETED	%9'.26	
Bulk 1,2,3	89337-39	3	14	42		42	42
Bulk 4,5	89340-42	3	14	42	42	42	42
Bulk 1,2,3 <75um	89371-72	4	14	52	56	52	56
Bulk 1,2,3 >75um	89373-74						
Bulk 1,2,3 >2.0 sp.gr.	89723	2	15	30	30	30	30
Bulk 1,2,3 <2.0 sp.gr.	89724						
	GROUP SUM			166		166	170

Precision 1 The number of tests completed whose relative percent differences (RPDs) fell within the test's acceptance criteria. Accuracy 2 The number of tests completed whose percent recoveries (% R) fell within the test's acceptance criteria.

Completeness 3 The number of tests completed or that had acceptable QC including 1 and 2 above. Total Tests 4 The number of analytes multiplied by the number of samples.

U.S. Army Corps of Engineers	y Cor) sd	of Engine	ers			J	Chain of Custody Record	Recor
Prol. No. Pro	ojeci Nam	-62	Project Name CREEN BAY	Mobiled			The Page		
Sampler : {Signeture}	neturel	V			to tadm aveniate	15 1701 15 1701	V 1007		
Date Time	Pres.	G rab	Site Code/Samp	Code/Sample Number	O O			A Romarks:	
Spirit			G 18 SAFERE	. 00	$\langle \mathcal{N} \rangle$	X	/		
8/10/20 15.25	/	×	6.8 overtho)	M	X			
S: 51 cs/c1/6	1	×	6.8, Feed		2	$X \mid X$			
8/15/20 🚵 🐇	A CHAILA	X	G.B. URDERFE	a	2	X X			
8/10/20 E	Mary Control	Υ.	C. B. Sucarria	(con	8	×			
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Relinquiehed by: (Sig)	(818)		Date (Time	Received for Laboratory by: (8fg.)	; (8(g.)		Date/Time	Remarks at lime of receipt:	p1:
Custody Sax! No.	٠		-	Lab case No.	↔				
ENG Form 5021-R,	R, Oct 90	0		· Arrivaria				Proponent:	CEMP-RT

Bampler : (Signeture)	CREW BAY				.:	Chain c	(ER 1110-1-263)
Time Press.		PLANT			TEN TE		
Time Pres.			to tedm stemiati	22.22	N VOIL		
-	Site Code/Samp	de/Sample Number	<u> </u>	PA PA	TOW SAL	<u> </u>	Remarkes
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3/10/00 11:25 / X		Sen #S	_	×	×		
19/10/12/00 X	4 4	CHARACTERIZATION	3	X			
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910/20 (4.5) X	Coloren Barl)	3	$\langle \chi $			
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1	M NE	*****	ENVIRONMENTAL	CHEMISTRY BRANCH	- DATA REPOR	RTING SHEET	(PAGE 1 OF	2) *********	*****	李孝宗士
JOB JOB	DESCRIPTION: GRI	EEN BAY	MOBILE TRIMT	PLANT -OLIN-ESTE		NUMBER: 00 SAMPLE: SE	054PD-92310183 EDIMENT	RECEIPT COMPLETION	DATE:	02 ,
	COLUMN		**	2	3					
	ANALYTE. MG/KG		86 TOC	100 0&G	104 TRPH					
	************		700	Owa	, ckra					
SAMP #	DESCRIPTION						·			
89331	BULK 1,2,3-1	CONC	51,000	f 250	120	1				
	5/30/00 10:30	%REC		1	1	i				
	GB/BP CDF	DUPL	48800	İ	i					
4.1		OID.	10040158	55990172	55990172	Ĭ				
89332	BULK 1,2,3-2	CONC	48300	200	100	1				
	5/30/00 10:30	%REC		Į	1	1				
	GB/BP COF	DUPL	10040158	 55990172		ļ				
		010	10040/130	1 33990172	55990172	ļ.			•	
89333	BULK 1,2,3-3	conc	///00		i					
0,000	5/30/00 10:30	CONC	46400	190	98	ļ				
	GB/BP CDF	DUPL		1		1				
			10040158	55990172	55990172					
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89334	BULK 4,5-1	CONC	43900	1 150	82	1 .				
	5/26/00 15:30	XREC	,5,00	1	1 05					
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		OID	10040158	55990172	55990172	j				
				-						
89335	BULK 4,5-2	CONC	43800	140	74	1	ac.			
	5/26/00 15:30 GB/BP CDF	XREC		1	1	1				
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89336	BULK 4,5-3	CONC	/ 4900	1 450	7.44		•	**		
2.030	5/26/00 15:30	%REC	40000	150	78	1				
	GB/BP CDF	DUPL		1	I I	1				
		OID	10040158	55990172	55990172	i				
TOC	Total Organic ('08G C	oil and Greas	ie.			
TRPH	Total Recoverab	ole Peti	oleum Kydroca	arbons						

DATE: 22 JUI JOB DESCRIPTION: GREEN BAY MOBILE TRIMT PLANT -OLIN-ESTES JOB NUMBER: 0054PD-92310183 RECEIPT DATE: 02 JUL EM. PRESERVATIVE: TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 22 JUN COLUMN...... 1 2 3 ANALYTE..... 86 100 104 MG/KG..... TOC 086 TRPH SAMP # DESCRIPTION METHOD BLANK 01 CONC <100 BL#01 <35 | <35 %REC DUPL 010 10040158 4 1 55990172 55990172 BL#02 LCS 01 CONC 8927 922 935 %REC 89.3 90.7 92.0 DUPL 010 10040160 55990172 55990172 BL#03 EXTERNAL OC 01 CONC 18672 N/A XREC DUPL OID 10040158 55990165 55990167 TOC Total Organic Carbon O&G Oil and Grease TRPH Total Recoverable Petroleum Hydrocarbons

KNOWNIE 89337 ARTON BEFORE DATE: 22 JL ******* ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 6) ********************************* JOB DESCRIPTION: GREEN BAY MOBILE TRIMT PLANT -OLIN-ESTES JOB NUMBER: 0054P0-92310183 RECEIPT DATE: 02 JU CHEM. PRESERVATIVE: TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 22 JU COLUMN..... 1 -3 6 ANALYTE..... 2 5 7 8 MG/KG..... AS ED. CR cu PB НG SAMP # DESCRIPTION 89337 BULK 1,2,3-1 CONC 3.28 0.895 52.9 51.7 63.2 0.965 5/30/00 10:30 XREC 91.2 79.4 86.4 85.6 101.6 107.5 GB/BP CDF DUPL 3.38 0.895 52.1 51.1 64.2 0.989 01260172 DID 01260172 01260172 01260172 01260172 04650168 RGA AUTHod i HGA AUTH HGA AUTH HGA AUTH 89338 BULK 1,2,3-2 CONC 3.31 0.911 1 56.6 55,6 65.3 1.02 5/30/00 10:30 ZREC. GB/8P CDF DUPL OID 01260172 01260172 01260172 01260172 01260172 04650168 HGA AUTH HGA 'AUTH HGA AUTH HGA AUTH 89339 BULK 1,2,3-3 CONC 2.79 0.858 47.2 49.3 63.6 0.997 5/30/00 10:30 %REC GB/BP CDF DUPL OID. 01260172 01260172 01260172 01260172 01260172 04650168 HGA AUTH HGA AUTH HGA AUTH HGA AUTH 89340 BULK 4,5-1 CONC 3.28 0.875 51.8 47.6 1.02 5/26/00 15:30 XREC GB/BP CDF DUPL OID 01260172 01260172 01260172 01260172 01260172 04650168 HGA AUTH HGA AUTH HGA AUTH HGA AUTH 89341 BULK 4,5-2 CONC 3.10 0.871 49.9 48.7 66.1 1 1.03 5/26/00 15:30 %REC GB/BP CDF DUPL OID 01260172 01260172 01260172 01260172 01260172 04650168 HGA AUTH HGA AUTH HGA AUTH HGA AUTH 89342 BULK 4,5-3 CONC 3.48 1.07 58.3 50.5 77.1 1.00 5/26/00 15:30 ZREC G8/8P CDF DUPL 010 01260172 01260172 01260172 01260172 01260172 04650168 HGA AUTH HGA AUTH HGA AUTH HGA AUTH AS Arsenic CD Cadmium CR Chromium eu. Copper Lead Hercury

:	E: 89337							WIFF 4	9 AP / 1 444	DATE:	
******	*************		Environmental	L CHE	HISTRY BRANCH	- DATA RE	PORTING S	SHEET (PAGE	2 OF 6) HWW		******
	DESCRIPTION: GREE	N BAY	MOBILE TRINI	r PL/	NT -OLIN-ESTE			ER: 0054PD-9 LE: SEDIMENT		RECEIPT DATE:	
	COLUMN		1	1.	2	3		4	5	6	
	ANALYTE MG/KG				CD CD	5 CR		6 CU	7 P8	8 . Kg	
		•••••	AS		LU	LK		ÇU	P8	Nu	
SAMP #	DESCRIPTION										R
BL#01	METHOD BLANK 01	CONC	<0.200	1	<0.020	<0.100		0.200	<0.100	<0.040	1
		XREC DUPL		1		-				1	1
		OID	01260172		01260172	012601	72	01260172	01260172	04650168	i
					HGA AUTH	HGA AU	тн	HGA AUTH	HGA AUTH	•	•
BL#02	LCS 01	CONC	4.30	ı	2.40	9.90		10.2	5.80	0.0757	1
		*REC	86.0	į	100.4	99.1		102.0	116.8	100.9	ļ
		DUPL OID	01260172	H	01260172	1 012601	72	01260172	01260172	04650168	-
			-1000112		HGA AUTH	HGA AU		HGA AUTH	HGA AUTH	,	'
BL#03	EXTERNAL QC 01	CONC	76.8	ı	32.2	12.4		87.5	1150	0.050	1
		XREC		į		İ			Ĭ	į	
		DUPL	01260172		01260172	012601	72	01260172	01260172	 04650168	- 1.
		0.0	01200112	1	HGA AUTH	HGA AU		HGA AUTH	HGA AUTH	1 01030100	'
AS	Arsenic					CD	Cacimin	JTN			
CR	Chromium					cu	Coppe				
PB	Lead				•	TyHG	Kercu	гу	17		
								•			
				:							
				1							
				1							•
										•	
	•										
•											
				* *							
				:							

15000 JOB FILE: 89337 DATE: 27 JU JOB DESCRIPTION: GREEN BAY MOBILE TRIMT PLANT -OLIN-ESTES JOB NUMBER: 0054PD-92310183 RECEIPT DATE: 02 JU CHEM. PRESERVATIVE: TYPE OF SAMPLE: SEDIMENT. COMPLETION DATE: 27 JUN COLUMN..... 7 Ŕ 0 10 11 12 ANALYTE 9 10 11 13 25 -30 MG/KG......NI SE. AG ZN RA FE DESCRIPTION 89337 BULK 1,2,3-1 CONC 21.2 0.895 0.397 150 80.2 1 16700 5/30/00 10:30 %REC 87.8 82.0 83.4 93.2 103.6 1 115.0 GB/BP COF DUPL 20.6 0.895 0.497 ر. 10 ايل 153 83.3 17000 01260172 01260172 01260172 01260173 01260172 01260173 HGA AUTH HGA AUTH 89338 BULK 1,2,3-2 CONC 24.4 1.00 0.501 1 142 92.0 . 17300 5/30/00 10:30 %REC GB/BP CDF DUPL 010 01260172 01260172 01260172 01260173 01260172 01260173 HGA AUTH HGA AUTH 89339 BULK 1,2,3-3 CONC 19.3 0.898 0.399 138 75.9 5/30/00 10:30 1:14900 ZREC GB/BP CDF DUPL OID 01260172 01260172 01260172 01260173 01260172 01260173 HGA AUTH HGA AUTH 89340 BULK 4,5-1 CONC 20.0 1.09 1 0.597 1 135 80.9 16400 5/26/00 15:30 XREC GB/BP CDF DUPL OID 01260172 01260172 01260172 01260173 01260172 01260173 HGA AUTH HGA AUTH 89341 BULK 4,5-2 CONC 19.7 1.10 0.400 139 75.3 15000 5/26/00 15:30 ZREC GB/BP CDF DUPL DID 01260172 01260172 01260172 01260173 01260172 01260173 HGA AUTH RGA AUTH 89342 BULK 4,5-3 CONC 21.9 0.995 0.597 1 154 88.9 17500 5/26/00 15:30 **XREC** GB/RP CDF DUPL DID 01260172 01260172 01260172 01260173 01260172 01260173 HGA AUTH HGA AUTH NI Nickel SE Selenium AG Silver ZN Zinc ВА Barium FE Iron

JOB DESCRIPTION: GREEN BAY MOBILE TRIMT PLANT - OLIN-ESTES				CHTRONIENIA	L CHEMISTRY BRANCI	T THE REPORT	ING SHEET (PAG	E 4 OF 6)	有水的水生物生物产业物的水的水的水土物 的水
COLUMN	CHEM.	DESCRIPTION: GR PRESERVATIVE:	EEN BAY	HOBILE TRIM	PLANT -OLIN-ESTE		HUMBER: 0054PD-S		RECEIPT DATE: Q
ANALYTE					8	9	10		
SAMP # DESCRIPTION BL#01 METHOD BLANK 01 CONC <0.100									
BL#01 METHOD BLANK 01 CDNC <0.100		MG/KG		NI	SE	AG	2.4		
State	SAMP #	DESCRIPTION							
No. Nicket No. N	BL#01	METHOD BLANK 01	CONC	<0.100	1 <0.200	t <n son<="" td=""><td>1 -1 00</td><td>1</td><td></td></n>	1 -1 00	1	
BL#02 LCS 01 CONC 10.5 1.90 2.40 20.0 24.7 55.0 24.7 20.0 20.0 24.7 20.0 20.0 24.7 20.0 20.0 24.7 20.0 20.0 24.7 20.0					i	1	1 41.00	<0.100	<2.00
HGA AUTH					!	İ	i	i]
BL#02 LCS 01	4		010		01260172	•	01260173	01260172	01260173
No. 1.50 1.50 2.40 20.0 24.7 55.0		LCC D1			. 🗥				
DUPL OID 01260172 01260172 01260173 01	Jan VI,	E00 01			•	•		24.7	55.0
DID 01260172 01260172 01260173 012				103.0	1 14.4	1 95.6	1 80.0	98.8	•
BL#03 EXTERNAL QC 01 CONC 13.0 1.49 3.58 274 182 13600					01260172	•	01260173	01260173	01260173
1.49 3.58 274 182 13600						NGA AUTH			
MI Nickel AG Silver BA Barium REC DUPL 01D 01260172 01260172 01260172 01260173 01260173 01260173 BE Selenium ZN Zinc FE Iron	BL#03	EXTERNAL QC 01		13,0	1.49	3.58	274	1 182	1 13600
OID 01260172 01260172 01260172 01260173					!	1	į .)
HGA AUTH HGA AUTH NI Nickel AG Silver BA Barium FE Iron				01260172	1 01360173		1	i	
AG Silver SE Selenium BA Barium FE Iron			0.0		1 01260172	•	01260173	01260173	01260173
AG Silver ZN Zinc BA Barlum FE Iron	KI	Nicket				CE 001			
BA Bartum FE Iron									
	BA	Barium				FE Iron			
						`		N,	
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JOB FILE: 89337
                                                                                    DATE: 22 JUN
  JOB DESCRIPTION: GREEN BAY MOBILE TRIMT PLANT -OLIN-ESTES
                                                   JG8 NUMBER: 0054PD-92310183
                                                                              RECEIPT DATE: 02 JUN
 CHEM. PRESERVATIVE:
                                                TYPE OF SAMPLE: SEDIMENT
                                                                            COMPLETION DATE: 22 JUN
            14
            ANALYTE..... 32
                                    33
            MG/KG..... MN
 SAMP #
       DESCRIPTION
        METHOD BLANK D1 CONC <0.100
                                  <0.100
                    %REC
                    DUPL
                    010 01260173
                                  01260172
                        HGA AUTH
å.
 BL#02
       LCS 01
                    CONC 9.90
                                  4.50
                    %REC 99.4
                                  90.0
                    DUPL
                                  01260172
                    010 01260173
                        HGA AUTH
 BL#03
       EXTERNAL QC 01
                   CONC 452
                                  0.299
                    %REC
                    DUPL
                    010 01260173
                                  01260172
                        HGA AUTH
 MN
        Manganese
                                                     Molybdenum
```

DATE: 16 JUN C JOB TILE: 89343 6 RECEIPT DATE: 02 JUN E. DOS DESCRIPTION: GREEN BAY MOBILE TRIMT PLANT -CLIN-ESTES JOB NUMBER: 0054PD-92310183 TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 16 JUN C CHEM. PRESERVATIVE: COLUMN...... 1 142 140 141 139 ANALYTE..... 137 138 UG/KG..... PCB-1016 PCB-1221 PCB-1232 PCB-1242 PC9-1248 PCB-1254 DESCRIPTION RC SAMP # 1 <24.8 <24.8 BULK 1.2.3-1 CONC <24.8 <24.8 | <24.8 1 1261 R0343 XREC 111.6 5/30/00 10:30 GB/BP CDF DUPL 54830166 54830166 54830166 54830166 54830166 54830166 OID <24.3 <24.3 1 1083 <24.3 i <24.3 89344 BULK 1,2,3-2 CONC <24.3 5/30/00 10:30 XREC GB/BP CDF DUPL 54830166 1 54830166 54830166 DID 54830166 54830166 54830166 <24.8 <24.8 1140 <24.8 <24.8 89345 BULK 1,2,3-3 CONC <24.8 5/30/00.10:30 XREC GB/BP CDF DUPL 54830166 54830166 54830166 54830166 DID 54830166 54830166 <22.4 <22.3 1 1160 <22.4 <22.4 89346 BULK 4,5-1 CONC <22.4 5/26/00 15:30 ZREC GB/BP CDF DIE 54830166 54830166 54830166 54830166 54830166 54830166 <23.0 1 1378 <23.0 BULK 4,5-2 CONC <23.0 <23.0 1 <23.0 89347 *REC 5/26/00 15:30 GB/BP CDF DUPL 54830166 I 54830166 OID 54830166 54830166 54830166 54830166 | <22.1 <22.1 <22.1 CONC <22.1 <22.1 BULK 4,5-3 89348 5/26/00 15:30 **XREC** GB/BP CDF DUPL 54830166 54830166 010 54830166 54830166 54830166 54830166 PCB-1221 PCB-1221 PC8-1016 PCB-1016 PCB-1242 PCB-1242 PCB-1232 PCB-1232 PC8-1254 PCB-1254 PCB-1248 PCB-1248

OATE: 16 JUN [JOB FILE: 89343 JOB NUMBER: 0054PD-92310183 RECEIPT DATE: 02 JUN C . JOB DESCRIPTION: GREEN BAY MOBILE TRIMT PLANT -OLIN-ESTES TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 16 JUN C CHEM. PRESERVATIVE: COLUMN...... 1 5 2 3 140 141 142 ANALYTE..... 137 139 138 PCB-1232 PC8-1254 PCB-1242 PC8-1248 UG/KG..... PCB-1016 PCB-1221 SAMP # DESCRIPTION RC <8.33 <8.33 <8.33 <8.33 BL#01 METHOD BLANK 01 CONC <8.33 <8.33 %REC DUPL 54830166 54830166 54830166 54830166 54830166 010 54830166 CONC 0.82 N/A N/A N/A N/A BL#02 LCS 01 %REC 98.4 DUPL 010 54830166 54830166 54830166 54830166 54830166 54830166 PC8-1221 PC8-1221 PCB-1016 PCB-1016 PCB-1232 PCB-1232 PC8-1242 PC8-1242 PCB-1254 PCB-1254 PCB-1248 PCB-1248

	ESCRIPTION: GRE	EN BAY	MOBILE TRIMT (PLANT -OLIN-ESTES	JOB NUMBER: TYPE OF SAMPLE:	0054PD-92310183 SEDIMENT	RECEIPT D		
	COLUMN		7	8	9				
	ANALYTE		143	145	146				
	UG/KG	•••••	PCB-1260	TCLXYL-S	DCLBP				
AMP.#	DESCRIPTION								ï
9343	BULK: 1,2,3-1	CONC	47.9	78.4%	75.3%				
	5/30/00 10:30	XREC	88.4	84.5	71.6				
	GB/BP CDF	DUPL		ii	· [
	***	010	54830161	54830161	54830166				
			22 B	1 83.1%	73.8%				
9344	BULK 1,2,3-2	CONC	00.0	1 03.1%	13.04				
	5/30/00 10:30	XREC		- }	}				
	GB/BP CDF	JANA	54830161	54830161	54830166				
		OID	,5400001	1 24020101	1,34030,00			•	
9345	BULK 1,2,3-3	CONC	42.2	85.1%	77.4%				
	5/30/00 10:30	XREC		İ					
	GB/BP CDF	DUPL		1	l J				
		OID	54830161	54830161	54830166				
19346	BULK 4,5-1	CONC	39.5	75.5%	72.7%				
,,,,,,	5/26/00 15:30	XREC		1					
	GB/BP CDF	DUPL			i i				
	initial and	DID	54830161	54830161	54830166				
				•					
39347	BULK 4,5-2	CONC	61.8	85.1%	76.9%				
	5/26/00 15:30	XREC		i					
	GB/BP CDF	DUPL		Ì	i L				
		010	54830161	54830161	54830166				
39348	BULK 4,5-3	-Postô	47.3	85.9%	80.3%				
7340	5/26/00 15:30	%REC	71.43	1	55.57				
	G9/BP CDF	DUPL		I.					
	us/Br Cur	DUPL	54830161	54830161	54830166				
		010	37030101	1 37030101	1 2 300 100				

DATE: 16 JUN C JOB FILE: 89343 JOB DESCRIPTION: GREEN BAY MOBILE TRIMT PLANT -OLIN-ESTES JOB NUMBER: 0054PD-92310183 RECEIPT DATE: 02 JUN C COMPLETION DATE: 16 JUN C TYPE OF SAMPLE: SEDIMENT CHEM. PRESERVATIVE: COLUMN...... 7 8 145 ANALYTE..... 143 146 UG/KG..... PCB-1260 TclXYL-\$ DCLBP SAMP # DESCRIPTION RC 81.1% BL#01 METHOD BLANK 01 CONC <8.33 87.1% %REC DUPL 54830166 54830161 OID 54830161 BL#02 LCS 01 CONC 0.87 77.4% 78.6% XREC 104.4 DUPL 54830166 OID 54830161 54830161 TclXYL-S 2,4,5,6-Tetrachloro-m-xylene(Surrogate(60-150 WS PC8-1260 PCB-1260 DCLBP Decachlorobiphenyl(Surrogate (60-150 WS))

	ECB Quality Assu	rance Corrective Action	n Form
Analysis:	PCB	Date:	15-June-00
Analyst:	A. Morrow	Instrument:	5890 #83 GC
Problem:	There is PCB's present, not su	ure if it is 1242 or 1248	
			·
Sample Nur	mber(s) Affected: 89343	-89348	
Recommen	ded Corrective Action: Report	t as 1242 and do further study,	
		Ŋ	
			,
			·
Corrective A	Action Taken By Analyst: Same	as above.	
		•	
Comments:	There will be further clean-up a qualitatively identify sample co	and analyses done to better quanti	tate and
	(
	11 -11	5-June-00	
Reviewed b	x. 1 Jernso Moston	lean	

INTERNAL QC DATA

Jobfile Number: 89343
Project: GREEN BAY MOBILE TRTMT PLANT -OLIN-ESTES
Account Number: 0054PD-92310183
Date Received: 02 JUN 00

Job#	Sample	Tst	Analyte	% REC	% SDUPL	RPD	OID
			PCB-1016		77.2	36.4	54830166
89343	89343	143	PCB-1260	88.4	85.2	3.7	54830161
89343	89343	145	TclXYL-S	84.5	80.5	4.8	54830161
89343	89343	146	DCLBP	71.6	73.0	1.9	54830166

Page 1

END OF REPORT

JOS FILT: 89749 DATE: 13 JUN ********** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 8) ***************************** JOB DESCRIPTION: GREEN BAY MOBILE TRIMT PLANT -OLIN-ESTES JOB NUMBER: 0054PD-92310183. RECEIPT DATE: 02 JUN CHEM. PRESERVATIVE: TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 13 JUN COLUMN..... 1 303 ANALYTE..... 290 294 296 297 304 UG/KG..... NAPHTH ACENAY ACENAP FLUORE PHENAN ANTRAC SAMP # DESCRIPTION 89349 BULK 1,2,3-1 10 J CONC 163 1 19 1 40.0 258 45.9 5/30/00 10:30 %REC GB/BP CDF DUPL OID 08890160 08890160 08890160 08890160 08890160 08890160 89350 BULK 1,2,3-2 **CONC** 195 1 11 J 1 22.0 44.9 275 1 50.7 5/30/00 10:30 %REC GB/BP CDF DUPL 08890160 DID 08890160 08890160 08890160 08890160 08890160 89351 BULK 1,2,3-3 **CONC** 138 8.9 4 23.8 :42.6 275 52.5 5/30/00 10:30 XREC GB/BP CDF DUPL OID: 08890160 08890160 08890160 08890160 08890160 08890160 89352 BULK 4,5-1 CONC 157 9.8 1 1 15 J 38.5 į 213 35.8 5/26/00 15:30 **XREC** GB/BP COF DUPL 010 08890160 08890160 08890160 08890160 08890160 08890160 89353 BULK 4,5-2 CONC 113 8.2 J 1 14 3 | 218 33.0 40.3 5/26/00 15:30 **ZREC** GB/BP CDF DUPL 08890160 Q10 08890160 08890160 08890160 08890160 1 08890160 89354 BULK 4,5-3 CONC 104 1 9.0 1 1 14 J 1 37.0 1 229 43.4 5/26/00 15:30 %REC 90.0 74.0 79.5 89.0 102.5 90.0 GB/BP CDF DUPL 08890160 010 08890160 08890160 08890160 08890160 08890160

ACENAY

FLUORE

ANTRAC

Acenaphthylene

Fluorene

Anthracene

Naphthalene

Acenaphthene

Phenanthrene

NAPHTH

ACENAP

PHENAN

JOB :FILU: 89349 DATE: 13 JUN JOB DESCRIPTION: GREEN BAY MOBILE TRIMT PLANT -OLIN-ESTES JOB NUMBER: 0054PD-92310183 RECEIPT DATE: 02 JUN CHEM. PRESERVATIVE: TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 13 JUN : COLUMN..... 1 2 3 5 6 ANALYTE..... 290 294 296 297 303 304 UG/KG..... NAPHTH ACENAY ACENAP FLUORE PHENAN ANTRAC SAMP # DESCRIPTION BL#01 METHOD BLANK 01 CONC <10 <10 <10 | <10 <10 | <10 %REC DUPL 010 08890160 08890160 08890160 08890160 08890160 08890160 LCS 01 CONC 64.5 64.0 76.0 80.5 88.5 85.5 %REC 64.5 64.0 76.0 80.5 88.5 85.5 DUPL 08890160 010 08890160 08890160 08890160 08890160 08890160 NAPHTH Naphthalene ACENAY Acenaphthylene ACENAP Acenaphthene FLUORE Fluorene PHENAN Phenanthrene ANTRAC Anthracene

 $\mathfrak{g} = L_{g^{*}}^{\mathcal{G}}$

*****	******	*****	ENVIRONMENTA	L CHEMISTRY BRANCH	- DATA REPORTI	NG SHEET (PAGE	3 OF 8) **	DATE: 13
JOB E	DESCRIPTION: GR	EEN BAY	HOBILE TRIM	PLANT -OLIN-ESTES		UMBER: 0054PD-9 AMPLE: SEDIMENT		RECEIPT DATE: 02 .
	€OLUMN		7	ä	9	10.	41.	
	ANALYTE.		306	307	309	310	313	12
	UG/KG	******	FLANTHE	PYRENE	CHRYSE'.	BAANTHR	BBFLANT	314 BKFLANT
AMP #	DESCRIPTION							•
9349	BULK 1,2,3-1	CONC	417	369	1 253	i an i		
	5/30/00 10:30	XREC	****	1 307] 233	[187	186	147
	GB/BP CDF	DUPL			1 .	-		1
		010	08890160	08890160	08890160	08890160	08890160	08890160
9350	BULK 1,2,3-2 5/30/00 10:30 GB/BP CDF	CONC XREC DUPL	388	1 465	27 <u>2</u> 	197 	185 	143
		CID	08890160	08890160	08890160	08890160	08890160	08890160
	BULK 1,2,3-3 5/30/00 10:30 GB/BP CDF	CONC XREC DUPL	359	341	218 `	157	149. -	127
		OID	08890160	08890160	08890160	08890160	08890160	08890160

08890160

08890160

195

193

118.5

08890160

FLANTHE Fluoranthene CHRYSE Chrysene Benzo(b)Fluoranthene

5/26/00 15:30

GB/BP CDF

BULK 4,5-2

GB/BP CDF

BULK 4,5-3

GB/BP CDF

5/26/00 15:30

5/26/00 15:30

89353

89354

%REC

DUPL OID

%REC

DUPL 010

DUPL 010

CONC 327

CONC 308

XREC 132.0

08890160

08890160

08890160

08890160

08890160

309

. 305

130.0

08890160

PYRENE Pyrene

BAANTHR. Benzo(a)Anthracene BKFLANT Benzo(k)Fluoranthene

08890160

08890160

146

139

101.0

08890160

-08890160

08890160

128

129

106.5

08890160

08890160

08890160

108

96.7

80.0

08890160

ŧ JC8 FILE: 89349 DATE: 13 JUN JOB DESCRIPTION: GREEN BAY MOBILE TRIMI PLANT -OLIN-ESTES 1 JOB NUMBER: 0054PD-92310183 RECEIPT DATE: 02 JUN CHEM. PRESERVATIVE: COMPLETION DATE: 13 JUN TYPE OF SAMPLE: SEDIMENT COLUMN..... 7 8 9 10 11 12 ANALYTE..... 306 307 309 310 313 314 UG/KG..... FLANTHE PYRENE CHRYSE BAANTHR BBFLANT BKFLANT SAMP # DESCRIPTION BL#01 METHOD BLANK 01 CONC <10 <10 <10 <10 | <10 <10 XREC DUPL 010 08890160 08890160 08890160 08890160 08890160 08890160 BL#02 LCS 01 CONC 91.5 87.0 97.5 1 85.0 78.5 88.0 XREC 91.5 87.0 97.5 85.0 78.5 88.0 DUPL 010 08890160 08890160 08890160 08890160 08890160 08890160 FLANTHE Fluoranthene PYRENE CHRYSE Chrysene BAANTHR Benzo(a)Anthracene BBFLANT Benzo(b)Fluoranthene BKFLANT Benzo(k)Fluoranthene $i\in C_{p}^{r}$

CHEM. PR	RESERVATIVE:	EEN BAY	MOBILE TRIMT	PLANT -OLIN-ESTES		UMBER: 0054PD-97 AMPLE: SEDIMENT	Ŧ	RECEIPT DATE: 02 COMPLETION DATE: 13
	COLUMN		13	14	15	16	17	18
	ANALYTE.			316.	. 317	318	322	327
	UG/KG		BAPYRE	.I123PYR	DBAHANT	B-GHI-PY	2MeNAPH	2FLBP-S
SAMP #	DESCRIPTION							
89349	BULK 1,2,3-1	CONC	205	1 174	25.4	T 188	162	1. 70 mm
	5/30/00 10:30	%REC		i	1	1	i iuz	79.0%
	GB/BP COF	DUPL		i .	Ï	i	ř	į.
		010	08890160	08890160	08890154	08890160	08890160	08890160
89350	BULK 1,2,3-2	CONC	207	1 176	30.6	185	r 474	er man mår.
	5/30/00 10:30	TREC		19	1 30.0). [(03	174	76.2%
	GB/BP COF	DUPL		İ	i	i	4	
		QID	08890160	08890160	08890154	08890160	08890160	08890160
39351	BULK 1,2,3-3	CONC	168	1 143	i 31.7	1 165	137	72.2X
	5/30/00 10:30	XREC	•	i	,	-1	1	12.22
	GB/BP CDF	DUPL		İ	i	i	i	
		010	08890160	08890160	08890154	08890160	08890160	08890160
				. •				
39352	BULK 4,5-1	CONC	145	j :118	26.9	150	154	74.8%
	5/26/00 15:30	XREC		.1	ĺ	i · ·	1 2	1
	GB/BP CDF	DUPL		1	ļ.	į	i ·	
		CID.	08890160	08890160	08890154	08890160	08890160	08890160
19353	BULK 4,5-2	CONC	152	1 125	27.5	1.1/0		
	5/26/00 15:30	%REC		1	21.3	148	118	67.7%
	GB/BP CDF	DUPL		i	-	1	}	ļ
	*	OID	08890160	08890160	08890154	08890160	08890160	08890160
9354	BULK 4,5-3	CONC	150	122	25.3	i	1	
	5/26/00 15:30	%REC	101.0	106.5	95.0	149	119	65.9%
	GB/BP CDF	DUPL	1477		73.0	100.5	97.5	71.7
		OID	08890160	08890160	08890154	08890160	08890160	08890160

JOB TILE: 89349

DATE: 13 JC

					•				
	DESCRIPTION: GRE RESERVATIVE:	EN BAY	MOBILE TRIM	T PLANT -OLIN-ESTES	JOB N	UMBER: 0054PD-92 AMPLE: SEDIMENT		RECEIPT DATE:	
	COLUMN			14	15	16	17	18	
	ANALYTE			316 1123PYR	317 DBAHANT	318 B-GHI-PY	322 2MeNAPH	327 2FlBP-S	
SAMP #	DESCRIPTION								
BL#01	METHOD BLANK 01	CONC %REC DUPL	<10	<10 	<10 	<10 	<10	82.6% 	!
		010	08890160	08890160	08890154	08890160	08890160	08890160	ŀ
BL#02	LCS 01	CONC	74.5	87.0	85.5	91.0	65.5	73.7%	1
			74.5	87.0	85.5	91.0	65.5	i	i
		DUPL	08890160	08890160	08890154	08890160	08890160	08890160	

BAPYRE Benzo(a)Pyrene

DBAHANT Dibenzo(A, H)Anthracene

2HeNAPH 2-Methylnaphthalene

I123PYR Indeno(1,2,3-C,D)Pyrene

B-GHI-PY Benzo(G,H,I)Perylene

2FIBP-S 2-Fluorobiphenyl(Surrogate (30-115 S))

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DATE: 13 JUN
JOB FILE: 85349
JOB NUMBER: 0054P0-92310183
                                                                                     RECEIPT DATE: 02 JUN
   JOB DESCRIPTION: GREEN BAY MOBILE TRIMT PLANT -OLIN-ESTES
                                                                                   COMPLETION DATE: 13 JUN
                                                    TYPE OF SAMPLE: SEDIMENT
CHEM. PRESERVATIVE:
            ANALYTE..... 328
            UG/KG..... PTERP-S
SAMP #
                     CONC 77.7%
89349
        BULK 1,2,3-1
        5/30/00 10:30
                     TREC
                     DUPL
        GB/BP CDF
                          08890160
                     OID
        BULK 1,2,3-2
                     CONC 92.9%
 89350
                     XREC
        5/30/00 10:30
        GB/BP CDF
                     OID 08890160
                      CONC 78.4%
 89351
        BULK 1,2,3-3
        5/30/00 10:30
                     XREC
                      DUPL
        GB/BP CDF
                          08890160
                      OID
                      CONC 78.9%
 89352
        BULK 4,5-1
                      XREC
        5/26/00 15:30
                      DUPL
        GB/BP CDF
                           08890160
                      OID
  89353
        BULK 4,5-2
                      CONC 76.4%
                      %REC
         5/26/00 15:30
         GB/BP CDF
                      DUPL
                      OID
                           08890160
                      CONC 80.5%
         BULK 4,5-3
  89354
                      %REC 79.0
         5/26/00 15:30
         GB/BP CDF
                      DUPL
                           08890160
                      DID
  PTERP-S p-Terphenyl-D14(Surrogate (18-137 S))
```

JOB FILE: 89349 DATE: 13 JUN JOB DESCRIPTION: GREEN BAY MOBILE TRIMT PLANT -DLIN-ESTES JOB NUMBER: 0054PD-92310183 RECEIPT DATE: 02 JUN CHEM. PRESERVATIVE: TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 13 JUN COLUMN...... 19 ANALYTE..... 328 UG/KG..... PTERP-S SAMP # DESCRIPTION BL#01 METHOD BLANK 01 CONC 76.6% *REC DUPL 010 08890160 BL#02 LCS 01 CONC 70.8% %REC DUPL 010 08890160 PTERP-S p-Terphenyl-D14(Surrogate (18-137 \$))

INTERNAL QC DATA

Tobfile Number: 89349
Project: GREEN BAY MOBILE TRIMT PLANT -OLIN-ESTES
Account Number: 0054PD-92310183

Date Received: 02 JUN 00

Job#	Sample	Tst	Analyte	% REC	% SDUPL	RPD	OID
89349	89354	290	NAPHTH	90.0	76.0	16.9	08890160
89349	89354	294	ACENAY	74.0	72.0	2.7	08890160
89349	89354	296	ACENAP	79.5	78.0	1.9	08890160
89349	89354	297	FLUORE	89.0	88.5	0.6	08890160
89349	89354	303	PHENAN	102.5	97.0	5.5	08890160
89349	89354	304	ANTRAC	90.0	90.0	0.0	08890160
89349	89354	306	FLANTHE	132.0	126.5	4.3	08890160
89349	89354	307	PYRENE	130.0	114.0	13.1	08890160
89349	89354	309	CHRYSE	118.5	105.0	12.1	08890160
89349	89354	310	BAANTHR	101.0	113.5	11.7	08890160
89349	89354	313	BBFLANT	106.5	98.5	7.8	08890160
89349	89354	314	BKFLANT	80.0	78.0	2.5	08890160
89349	89354	315	BAPYRE	101.0	93.5	7.7	08890160
89349	89354	316	I123PYR	106.5	103.0	3.3	08890160
89349	89354	317	DBAHANT	95.0	96.0	1.0	08890154
89349	89354	318	B-GHI-PY	100.5	95.0	5.6	08890160
89349	89354	322	2MeNAPH	97.5	.83.0	16.1	08890160
89349	89354	327	2F1BP-S	71.7	69.8	2.7	08890160
89349	89354	328	PTERP-S	79.0	81.0	2.5	08890160

Page 1

END OF REPORT

30 	2 4 CD 0.770 79.4 0.950 01260172 HGA AUTH 0.880 01260172 HGA AUTH	3 5 CR 43.7 95.8 47.1 01260172 HGA AUTH 50.4 01260172 HGA AUTH	4 6 CU 43.8 92.4 47.9 01260172 HGA AUTH	5 7 PB 58.5 104.2 63.4 01260172 HGA AUTH 58.1 01260172 HGA AUTH	MPLETION DATE: 6 8 HG 1.07 116.0 1.08 04650168	ROW
.60 .60	CD 0.770 79.4 0.950 01260172 HGA AUTH 0.880 01260172 HGA AUTH	CR 43.7 95.8 47.1 01260172 HGA AUTH 50.4	43.8 92.4 47.9 01260172 HGA AUTH	\$8.5 104.2 63.4 01260172 HGA AUTH	8 HG 1.07 116.0 1.08 04650168	1
.60 .60	0.770 79.4 0.950 01260172 HGA AUTH 0.880 01260172 HGA AUTH	43.7 95.8 47.1 01260172 HGA AUTH 50.4 01260172 HGA AUTH	43.8 92.4 47.9 01260172 HGA AUTH 43.9 	58.5 104.2 63.4 01260172 HGA AUTH 58.1	1.07 116.0 1.08 04650168	1
30 260172 30 260172 -	79.4 0.950 01260172 HGA AUTH 0.880 01260172 HGA AUTH	95.8 47.1 01260172 HGA AUTH 50.4 01260172 HGA AUTH	92.4 47.9 01260172 HGA AUTH 43.9 01260172	104.2 63.4 01260172 HGA AUTH 58.1 01260172	116.0 1.08 04650168	1
30 260172 30 260172 -	79.4 0.950 01260172 HGA AUTH 0.880 01260172 HGA AUTH	95.8 47.1 01260172 HGA AUTH 50.4 01260172 HGA AUTH	92.4 47.9 01260172 HGA AUTH 43.9 01260172	104.2 63.4 01260172 HGA AUTH 58.1 01260172	116.0 1.08 04650168	İ
.80 .260172 .30 .3	0.950 01260172 HGA AUTH 0.880 01260172 HGA AUTH	47.1 01260172 HGA AUTH 50.4 01260172 HGA AUTH	47.9 01260172 HGA AUTH 43.9 01260172	63.4 01260172 HGA AUTH 58.1 01260172	116.0 1.08 04650168	İ
30 	01260172 HGA AUTH 0.880 01260172 HGA AUTH	01260172 HGA AUTH 50.4 01260172 HGA AUTH	01260172 HGA AUTH 43.9 01260172	D1260172 HGA AUTH	04650168	2
30 	HGA AUTH 0.880 01260172 HGA AUTH	HGA AUTH 50.4	HGA AUTH 43.9 01260172	HGA AUTH 58.1 01260172	0.999	j 2
260172	0.880 01260172 HGA AUTH	50.4 	43.9 01260172	58.1 01260172	1	2
260172	01260172 HGA AUTH	 01260172 HGA AUTH	01260172	 01260172	1	2
60	HGA AUTH	HGA AUTH	•	•	04650168	
60	HGA AUTH	HGA AUTH	•	•	04650168	į
60	HGA AUTH	HGA AUTH	•	•	04650168	
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260172	1.06	51.0				
•			67.4	74.1	1.40	1 3
•			j	ì	1	
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	01260172	01280172	01260172	01260172	04650168	i
	HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
50 [1.16	50.3	78.0	79.5	1 4 70	1 .
· .		1	1	17.3	1.48	4
i		i	i	1		- 1
260172	01260172	01260172	01260172	01260172	1 04650168	-
	HGA AUTH	HGA AUTH	HGA AUTH	HGÀ AUTH	1 0.000100	'
1 005	<n td="" ∩30<=""><td>1 -0 100</td><td>1 0 200</td><td>1</td><td></td><td></td></n>	1 -0 100	1 0 200	1		
	NO.020	1 <0.100	1 0.200	<0.100	<0.040	5
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260172	01260172	01260172	01260172	01260172	 06650168	-
•	NGA AUTH	NGA AUTH	HGA AUTH	HGA AUTH	1 04030100	'
30 ()	2.40	1 0.00	1 10 2	1 5 90	1 0 07/0	
•		•	•			6
i			I.	1 110.0	1 102.4	1 1 1/2
260172	01260172	01260172	01260172	01260172	04650168	-
1	HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH	,	•
		CD Cacimie	LIR			
		HG Mercui	гу			
	200	HGA AUTH 200 <0.020 - 1 01260172 HGA AUTH 0 2.40 96.4	HGA AUTH RGA AUTH 200 <0.020 <0.100 -	HGA AUTH	HGA AUTH	HGA AUTH

	DESCRIPTION: GREE			GHEMISTRY BRANCH LANT - ÖLIN•ESTE	S LOB	NUMBER: 00549	p-92310183	RECEIPT DATE:	
JHEMW M	COLUMN			2	3	SAMPLE: SEDIM 4 6	5 7	6 8	SS JUN
	MG/XG			CD	CR	CU	PB	КG	
SAMP #	DESCRIPTION								
BL#03	EXTERNAL QC 01	CONC XREC DUPL	76.8	32.2	12.4	87.5	1150	.0.050	1.
		OID	01260172	01260172 HGÁ AUTH	01260172 HGA: AUTH	01260172 HGA AUTH		04650168	
AS CR PB	Arsenic Chromium Lead				cu c	admium opper ercury			
			•						
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•	_		ENVIKUMMENIAL	CHEMISTRY BRANCH	- DATA REPORTI	NG SHEET (PAGE	3 OF 6)	******	****
THEM.	DESCRIPTION: GRE	EN BAY	MOBILE TRAT	PLANT - OLIN-ESTE		UMBER: 00549D-9		RECEIPT DATE: COMPLETION DATE:	4UL 50
	COLUMN		7	8	9	10	13	12	
	ANALYTE			10	11	13	25	30	
	MG/KG	•••••	N1	SE	AG	ZN	BA	FE	
SAMP #	DESCRIPTION								
89371	BULK 1,2,3	CONC	18.8	0.800	0.400	1 457	1	1	
	<75UM A 6/2/00		96.2	83.6	82.6	153	73.3	13900	1
	1300 GB/BP CDF		23.0	0.900	0.400	99.8	110.4	115.0	ļ
		OID	01260172	01260172	01260172	01260173	79.2	14300	ļ
			HGA AUTH	1 01200172	HGA AUTH	1 01200173	01260172	01260173	1
89372	BULK 1,2,3	CONC	20.9	1.10	0.500	155	1 82.6	1 47400	
	<75UM B 6/2/00	X REC		i	i		1 02.0	17100	[
	1300 GB/8P COF	DUPL		i	i	i	- }	1	1
		OID	01260172 HGA AUTH	01260172	27106210 F	01260173	01260172	01260173	1
89373	BULK 1,2,3	COVC	16.0	1 1 40		1 470			
0/013	>75UM A 6/5/00	%REC	10.0	[1.40	0.300	130	57.9	10900	- 1
	1400 GB/8P CDF	DUPL		l I	l i	!		!	1
	25/01 001		01260172	01260172	01260172			[
			HGA AUTH	LAIECOITE	HTUA ADH	01260173	01260172	01260173	1
9374	BULK 1,2,3		18.4	1.70	0.300	161	57.4	10600	1
	>75UM B 6/5/00	XREC		!	!	!		1	İ
	1400 GB/BP CDF	DUPL OID	01260172	l.	· Laurence		1	ļ	Ì
		0.0	HGA AUTH	01260172	101260172 HGA AUTH	01260173	01260172	01260173	I
BL#01	METHOD BLANK 01	CONC	<0.100	<0.200] <0.100	 <1.00	<0.100	. <2.00	1
		%REC		İ -	i	i	1	1 -2.00	ı
		DUPL		· [1	i	i	i	-
		OID	01260172	01260172	01260172	01260173	01260172	01260173	i
			HGA AUTH		HGA AUTH				,
BL#02	LCS 01	CONC		1.90	2.40	20.0	24.7	55.0	ļ
		DUPL	105.0	74.4	95.6	0.08	98.8	110.0	!
		OID	01260172	01260172	1 01240172	1 01340177			1
		010	HGA AUTH	1 01200172	101260172 HGA AUTH	01260173	01260172	01260173	1
NI	Nicket				SE Sele	enium			
	Silver				ZN Zinc				
AG BA	Barium								

JOB FILE: 89371 JOB NUMBER: 005490-92310183 RECEIPT DATE: 05 JUN OL JOB DESCRIPTION: GREEN BAY MOBILE TRMT PLANT - OLIN-ESTES COMPLETION DATE: 22 JUN DE TYPE OF SAMPLE: SEDIMENT HEM. PRESERVATIVE: 10 12 25 30 13 11 10 ANALYTE..... 9 ZN FĘ. NG/KG.....NI SE AG DESCRIPTION SAMP # 13600 3.58 182 1.49 BL#03 EXTERNAL OC 01 CONC 13.0 ZREC DUPL 01260173 01260172 01260173 01260172 01260172 010 01260172 HGA AUTH HGA AUTH Selenium SE Nickel NI Zinc ZN Silver AG FE Iron Barium

*****	**********	*****	ENVIRONMENTA	L CHEMISTRY BRANCH -	DATA REPOR	TING SHEE	T (PAGE 5	OF 6)	*******	DATE:	*****	**
·	DESCRIPTION CO.											
I . KB1.	RESERVATIVE:	EEN BAT	MORILE IRMI	PLANT - OLIN-ESTES			00549D-92310 SEDIMENT	183	RECEIPT COMPLETION	DATE:	22 JU	,RI JN
	COLUMN			14								
	MG/KG			33 MO								
SAMP #	DESCRIPTION											
89371	BULK 1,2,3	CONC	418	0.200								R
	<75UH A 6/2/00		106.0	85.2	!				•			
	1300 GB/BP CDF	DUPL		0.300	i							
		010	01260173 HGA AUTH	01260172	1							
89372	BULK 1,2,3	CONC	454	0.400	l							
	<75UM B 6/2/00	%REC		!	ĺ							
	1300 GB/BP CDF	DUPL	01260173	01260172	<u> </u>							
			HGA AUTH	0.2001/2	,							
89373	BULK 1,2,3	CONC	758	[0.400								
	>75UM A 6/5/00 1400 GB/BP CDF	%REC DUPL		!!!	i							
	20,51 051		01260173	01260172								
			HGA AUTH	,								
7374	BULK 1,2,3	CONC	906	0.400								
	>75UM B 6/5/00 1400 GB/BP CDF	XREC DUPL										
			01260173	01260172								
			HGA AUTH					Λ.				
8L#01	METHOD BLANK OT		<0.100	(0,100								
		XREC DUPL		1								
			01260173	01260172								
			HGA AUTH									
BL#02	LCS 01	CONC ZREC		4.50								ć
		DUPL	77.4	90.0					,			1
			01260173 HGA AUTH	01260172								
нн	Manganese			¥	10 Mo	lybdenum				÷		

JOB FILE: 89371 JOB DESCRIPTION: GREEN BAY MOBILE TRMT PLANT - OLIN-ESTES JOB NUMBER: 005490-92310183 RECEIPT DATE: 05 JUN 1 CHEM. PRESERVATIVE: TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 22 JUN (14 ANALYTE..... 32 33 MG/KG..... MN MO DESCRIPTION RC EXTERNAL OC 01 CONC 452 0.299 **XREC** DUPL 010 01260173 01260172 HGA AUTH Molybdenum

DATE: 15 JUN (F JOB PILE: 89375 ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 2) UOS DESCRIPTION: GREEN BAY MOBILE TRMT PLANT - OLIN-ESTES RECEIPT DATE: 05 JUN [JOB NUMBER: 005490-92310183 COMPLETION DATE: 15 JUN (TYPE OF SAMPLE: SEDIMENT CHEM. PRESERVATIVE: COLUMN..... 1 2 3 100 104 ANALYTE..... 86 TRPH MG/KG..... TOC 0&6 DESCRIPTION | 240 B 140 B BULK 1,2,3 CONC 41600 <75LM A 6/2/00 %REC 1300 GB/BP CDF DUPL DID 10040160 55990165 55990167 170 B 1 110 B BULK 1,2,3 CONC 41000 <75LM B 6/2/00 %REC 1300 GB/BP CDF DUPL 55990167 55990165 OID 10040160 BULK 1,2,3 CONC 34100 89377 >75UH A 6/5/00 %REC 1400 GB/BP CDF DUPL 55990165 55990167 DID 10040160 420 B 980 B 89378 BULK 1,2,3 ECNC 43700 >75UM B 6/5/00 %REC 90.9 1400 GB/BP CDF DUPL 38500 55990167 DID 10040160 55990165 METHOD BLANK 01 CONC <100 80 66 AL#01 %REC. DUPL 55990165 010 10040160 55990167 970 962 CONC 10000 8L#02 LCS O1 %REC 100.0 DUPL 55990165 55990167 010 Oil and Grease Total Organic Carbon TOC Total Recoverable Petroleum Hydrocarbons

DATE: 15 JUN C JOB NUMBER: 005490-92310183 JOB DESCRIPTION: GREEN BAY MOBILE TRMT PLANT - OLIN-ESTES RECEIPT DATE: 05 JUN C TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 15 JUN C CHEM. PRESERVATIVE: COLUMN..... 1 3 104 ANALYTE..... 86 160 MG/KG..... TOC SAMP # DESCRIPTION RC EXTERNAL GC 01 CONC 21155 XREC DUPL 55990167 010 10040160 55990165 0&G Oil and Grease TOC Total Organic Carbon Total Recoverable Petroleum Hydrocarbons TRPH

INTERNAL QC DATA

Jobfile Number: 89375
Project: GREEN BAY MOBILE TRMT PLANT - OLIN-ESTES
Account Number: 00549D-92310183
Date Received: 05 JUN 00

Job#	Sample	Tst	Analyte	% REC	% SDUPL	RPD	OID
89375	89378	100		85.1 90.9	78.8 89.0	7.7 2.1	55990165 55990167

Page 1

END OF REPORT

DATE: 16 JUN 0

	ESCRIPTION: GREE	N BAY	MOBILE TRMT P	LANT - OLIN-ESTES	JOB NU		649D-92310183 DIMENT	RECEIPT DATE: 0 COMPLETION DATE: 1	
	COLUMN		1	2	3	4	5	6	
	ANALYTE			138	139	140	141	142	
	UG/KG		PCB-1016	PCB-1221	PCB-1232	PCB~12	242 PCB-124	B PC8-1254	
SAMP #	DESCRIPTION								
89379	BULK 1,2,3	CONC	<25.2	<25.2	<25.2	1095	<25.2	<25.2	1
0,5,,	<75UM A 6/2/00	XREC	.,		ì	i	i	i	i
	1300 GB/BP CDF	DUPL		i	i	i	i	i	i
	1300 GB/BF CDF	OID	54830166	54830166	54830166	54830	166 5483016	6 54830166	i
		415	34030100	1, 27,030,100,		1 4 1447	• • • • • • • • • • • • • • • • • • • •	t in the second	'
89380	BULK 1,2,3	CONC	<23.7	<23.7	<23.7	845	<23.7	<23.4	:
0,000	<75UM 8 6/2/00	XREC			i	i		ĺ	i
	1300 GB/BP CDF	DUPL			i	i	i	i	Ĭ
			54830166	54830166	54830166	54830	166 5483016	6 54830166	į
89381	BULK-1,2,3	CONC	<29.5	<29.5	<29.5	1662	<29.5	<29.5	
	>75UN A 6/5/00	XREC			1	1	1	1	1
	1400 GB/BP CDF	DUPL		i de	į	1	ĺ	1	- 1
		010	54830166	54830166	54830166	54830	166 5483016	6 1 54830166	
•									
89382	BULK 1,2,3	CONC	<29.9	<29.9	<29.9	1823	<29.9	<29.9	
	>75UM B 6/5/00	XREC		1	1		1	!	
	1400 GB/BP COF	DUPL		ľ	1	1 .	, I	ļ	
		OID	54830166	54830166	54830166	54830	166 5483016	6 54830166	
					l a mm	1 .0 77		<8.33	
BL#01	METHOD BLANK 01		<8.33	<8.33	·<8.33	<8.33	<8.33	1 50.33	
		XREC				.1		1	
		DUPL	F4670444	1 5/0701//	 54830166	54830	166 5483016	6 54830166	
		010	54830166	54830166	34030100	1 34000	1 3403010	0 54000100	1
BL#02	:LCS 01	CONC	Ó.82	N/A	1 N/A	T N/A	1:N/A	N/A	
OLHUZ	icus UI		98.4	i nyn.	1 117	1 ""			
		DUPL	70.4			1	1		1
-	•	010	54830166	54830166	54830166	54830	166 5483016	6 54830166	
	•								
PCB-101	6 PCB-1016				PCB-1221 PCE				
PCB-123	2 PCB-1232				PC8-1242 PCE	3-1242			
nan. 13/	8 PC8-1248				PCB-1254 PCE	1257			

DATE: 16 JUN C JOB FILE: 89379 JOB DESCRIPTION: GREEN BAY MOBILE TRMT PLANT - OLIN-ESTES JCB NUMBER: 005490-92310183 RECEIPT DATE: , 05 JUN C COMPLETION DATE: 16 JUN C CHEM. PRESERVATIVE: TYPE OF SAMPLE: SEDIMENT 9 COLUMN..... 7 8 145 ANALYTE..... 143 146 UG/KG..... PCB-1260 TCLXYL-S DCLBP SAMP # DESCRIPTION RC 82.3% 79.2% BULK 1,2,3 CONC 42.8 <75UH A 6/2/00 %REC 1300 GB/BP CDF DUPL 54830166 54830166 DID 54830161 CONC 37.1 89380 BULK 1,2,3 89.1% 82.1% <75UM B 6/2/00 XREC 1300 GB/BP CDF DUPL DID 54830161 54830166 54830166 CONC 74.3 81.7% 75.8% 89381 BULK 1,2,3 >75UM A 6/5/00 **XREC** 1400 GB/BP CDF DUPL 54830166 54830166 DID 54830161 86.2% 1 74.1% 89382 BULK 1,2,3 CONC 81.5 >75UM B 6/5/00 %REC 1400 GB/BP CDF DUPL 54830166 010 54830161 54830166 BL#01 METHOD BLANK 01 CONC <8.33 1 87.1% 81.1% YREC DUPL 010 54830161 54830166 54830166 CONC 0.87 77.4% 78.6% BL#02 LCS 01 XREC 104.4 DUPL OID 54830161 54830166 54830166 TctXYL-S 2,4,5,6-Tetrachtoro-m-xytene(Surrogate(60-150 WS PC8-1260 PC8-1260 Decachlorobiphenyl(Surrogate (60-150 WS))

Analysis: PCB Analyst: A. Morrow	Date: 15-June-00 Instrument: 5890 #83 GC
A. MOITOW	Instrument: 5890 #83 GC
Problem: There is PCB's present, not su	ure if it is 1242 or 1248
Sample Number(s) Affected: 89379	⊦89382
Recommended Corrective Action: Report	rt as 1242 and do further study.
	1
Corrective Action Taken By Analyst: Same	as ahove
· · · · · · · · · · · · · · · · · · ·	
	and analyses done to better quantitate and
qualitatively identify sample or	ontaminants.
Date Corrective Action Taken: 15	5-June po
(2007 St. 11	The free and

JOB FILE: 89383 DATE: 14 JL ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 4) JOB DESCRIPTION: GREEN BAY MOBILE TRMT PLANT - OLIN-ESTES JOB NUMBER: 005490-92310183 RECEIPT DATE: 05 JU CHEM. PRESERVATIVE: TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 19 JU-COLUMN..... 1 2 3 5 6 ANALYTE..... 290 294 296 297 303 304 UG/KG..... NAPHTH ACENAY ACENAP FLUORE PHENAN ANTRAC SAMP # DESCRIPTION 89383 BULK 1,2,3 CONC 72.9 <20 1 10 J 26.0 166 1 27.0 <75UH A 6/2/00 %REC 1300 GB/BP CDF DUPL DID 08890160 08890160 08890160 08890160 08890160 08890160 89384 BULK 1,2,3 CONC 99.0 1 <19 [12 J 29.5 186 31,4 <75UM B 6/2/00 %REC 1300 GB/BP CDF DUPL OID 08890160 08890160 08890160 08890160 08890160 08890160 89385 BULK 1,2,3 CONC 352 1 43.2 60.7 118 1 886 202 >75UH A 6/5/00 XREC 1400 G8/8P CDF DUPL 08890160 OID 08890160 08890160 08890160 08890160 08890160 89386 BULK 1,2,3 CONC 382 39.2 1 63.0 128 868 185 >75UM B 6/5/00 %REC 1400 GB/BP CDF DUPL 010 08890160 08890160 08890160 08890160 08890160 08890160 81.401 METHOD BLANK O1 CONC <10 1 <10 i <10 <10 | <10 1 <10 XREC DUPL OID 08890160 08890160 08890160 08890160 08890160 08890160 BL#02 LCS 01 CONC 64.5 64.0 76.0 80.5 1 88.5 1 85.5 %REC 64.5 64.0 76.0 80.5 88.5 85.5 DUPL OID 08890160 08890160 08890160 08890160 08890160 08890160 NAPHTH Naphthalene ACENAY Acenaphthylene ACENAP Acenaphthene FLUORE Fluorene PHENAN Phenanthrene ANTRAC Anthracene

DATE: 14 JL

89383 BULK 89384 BULK 89385 BULK 89385 BULK >75UH	COLUMN ANALYTE UG/KG RTPTION 1,2,3 M A 6/2/00 GB/BP CDF 1,2,3 4 B 6/2/00 GB/BP CDF	CONC XREC DUPL OID CONC XREC DUPL OID	.306 FLANTHE	8 307 PYRENE 222 08890160	9 309 CHRYSE	10 310 BAANTHR 90.9 08890160	11 313 BBFLANT 105 08890160	12 314 BKFLANT
89383 BULK <75UN 1300 89384 BULK <75UN 1300 89385 BULK >75UN	UG/KG RIPTION 1.2,3 M A 6/2/QQ GB/BP CDF 1.2,3 4 B 6/2/QQ GB/BP CDF	CONC XREC DUPL DID CONC XREC DUPL GID	248 08890160 273	PYRENE 222 08890160	CHRYSE [141] [08890160	BAANTHR 90.9 08890160	105 08890160	8KFLANT 68.9
89383 BULK <75UN 1300 89384 BULK <75UN 1300 89385 BULK >75UN	1,2,3 M A 6/2/00 GB/BP CDF 1,2,3 4 B 6/2/00 GB/BP CDF	CONC XREC DUPL DID CONC XREC DUPL OID	248 08890160 273	222 08890160 258	[141] 	90.9	105 - - 08890160	68.9 08890160
89383 BULK <75UN 1300 89384 BULK <75UN 1300 89385 BULK >75UN	1,2,3 M A 6/2/QQ GB/BP CDF 1,2,3 H B 6/2/QQ GB/BP CDF	XREC DUPL GID CONC XREC DUPL GID	08890160 273	08890160 258	08890160	08890160	08890160	 08890160
89384 BULK 1300 89385 BULK >75UH	M A 6/2/00 GB/BP CDF 1,2,3 4 B 6/2/00 GB/BP CDF	XREC DUPL GID CONC XREC DUPL GID	08890160 273	08890160 258	08890160	08890160	08890160	 08890160
1300 89384 BULK <75U4 1300 89385 BULK >75U4	1,2,3 4 B 6/2/00 GB/BP CDF	DUPL OID CONC XREC DUPL OID	273	2 58	08890160	08890160	08890160	 08890160
89384 BULK <75UM 1300 89385 BULK >75UM	1,2,3 4 B 6/2/00 GB/BP CDF 1,2,3 3 A 6/5/00	CONC XREC DUPL OID	273	2 58		•		
<75UM 1300 39385 BULK >75UM	1 B 6/2/00 GB/BP CDF 1,2,3	CONC XREC DUPL GID	273	2 58		•		
<75UM 1300 39385 BULK >75UM	1 B 6/2/00 GB/BP CDF 1,2,3	XREC DUPL OID		İ	163	105	120 	83.8
<75UM 1300 39385 BULK >75UM	1 B 6/2/00 GB/BP CDF 1,2,3	XREC DUPL OID		İ	} -) .103. 	120	83.8
39385 BULK >75UM	1,2,3 1 A 6/5/00	OID	08890160	08890160	i	i.	I	i i
>7504	A 6/5/00		08890160	08890160			1	i i
>7504	A 6/5/00			*	08890160	08890160	08890160	08890160
>75UM	A 6/5/00	CONC	1200	1420	1 875	Laira		
1400		XREC		1 1420	1 013	812	584	473
	GB/BP CDF	DUPL	•		<u>.</u>	1	1	
		OID	08890160	08890160	08890160	08890160	08890160	08890160
19386 BULK	1,2,3	CONC	1060	.] 1300	825 -	1 700	l eu	1 ***
	B 6/5/00	*REC		1	1 023	į , 700	546	454
1400 (GB/8P CDF	DUPL.			Ì	i	'n	4
•		010	08890160	08890160	08890160	08890160	08890160	08890160
L#01 METHOD	D BLANK 01	CONC	<10·	<10	I <10	l <10	1 <10	l mà l
		XREC		i	1 339	1 -10	1 10	<10
		DUPL		i	i		í	
		CID	08890160	08890160	08890160	08890160	08890160	08890160
L#02 LCS 01	ī	CONC	91.5	87.0	97.5	85.0	78.5	l pa n
			91.5	87.0	97.5	85.0	78.5 78.5	88.0
		DUPL		į		1	1 70.3	1 60.0
		ÖID	08890160	08890160	08890160	08890160	08890160	08890160
ANTHE Fluor	anthene				PYRENE Pyr			

*****	******	*****	ENVIRONMENTAL	. CHEMISTRY BRANCH	- DATA PEDODT	INC CUEET & DACE	705 ())	DATE:	
					DAIN REPORT	ING SHEEL (PAGE	3 OF 4) 1	自由自由的 由自由的 由自由的 由自由的	***
JOB L JOB	DESCRIPTION: GR PRESERVATIVE:	EEN BAY	HOBILE TRMT	PLANT - OLIN-ESTES		NUMBER: 00549D-9 SAMPLE: SEDIMENT		RECEIPT DATE: COMPLETION DATE:	05 19
	COLUMN	• • • • • • •	13	14	15	16	17	18	
	ANALYTE.			316	317	318	322	327	
	UG/KG	• • • • • •	BAPYRE	I123PYR	DBAHANT	B-GHI-PY	2MeNAPH	2FIBP-S	
SAMP #	DESCRIPTION								
89383	BULK 1,2,3	CONC	99.9	90.9	19 J	103	1 86.9	1 45 50	
	<75UM A 6/2/00	XREC		i		1 103	1 60.9	65.2%	
	1300 GB/BP CDF	DUPL		ĺ	İ	i	i		
		OID	088901607	08890160	08890160	08890160	08890160	08890160	
89384	BULK 1,2,3	CONC	117	108	20.0	122	[111	75.9%	
	<75UM B 6/2/00	%REC		į		i	i	1	
	1300 GB/BP CDF	DUPL	08890160	08890160		!	İ	i	
		0.0	00370100	1 69530100	08890160	08890160	08890160	08890160	
89385	200 2 3 2 2	2011							
07303	BULK 1,2,3 >75UM A 6/5/00	CONC	813	553	114	611	411	75.9%	
	1400 GB/BP CDF	DUPL] -	l	1		
		010	08890160	08890160	08890160	08890160	08890160	08890160	
								·	
89386	BULK 1,2,3	CONC	725	527	114	l 617	441	1 7/ 70	
	>75UM B 6/5/00	XREC		<u> </u>	i	1	1 441	74.3%	
	1400 GB/BP CDF	DUPL	00000444	1		j	1 1	i	
		010	08890160	08890160	08890160	08890160	08890160	08890160	
BL#01	METHOD BLANK 01		<10	<10	<10	<10	<10	82.6%	
		XREC DUPL		1		ļ	ļ	ļ	
		010	08890160	08890160	08890160	08890160	l 08890160	08890160	
						1,	1 00070100	1 60830180	
BL#02	LCS 01	CONC	74.5	87.0	85.5	l pro	Leee	1	
		%REC		87.0	85.5	91.0	65.5	73.7%	
		DUPL		1		1		1 73.7	1
		OID	08890160	08890160	08890160	08890160	08890160	08890160	i
BAPYRE	Benzo(a)Pyrene				*497ava				
TARRAGI	Dibenzo(A, H)Anti	racene	,			eno(1,2,3-C,D)Pyr			
MeNAPH	2-Methylnaphtha					to(G,H,I)Perylene luorobiphenyl(Sur			

```
. JOB FILE: 89383
                                                                                             DATE: 14 JU
  JOB DESCRIPTION: GREEN HAY MOBILE TRAT PLANT - OLIN-ESTES
                                                                                       RECEIPT DATE: 05 JUL
                                                         JOB NUMBER: 005490-92310183
 CHEM. PRESERVATIVE:
                                                      TYPE OF SAMPLE: SEDIMENT
                                                                                    COMPLETION DATE: 19 JUN
             COLUMN....... 19
             ANALYTE..... 328
             UG/KG..... PTERP-S
 SAMP #
        DESCRIPTION
 89383
        BULK 1,2,3
                      CONC 79.6%
        <75UM A 6/2/00 XREC
        1300 GB/BP CDF
                     DUPL
                      OID
                          08890160
 89384
        BULK 1,2,3
                      CONC 78.4%
        <75UH B 6/2/00
                     TREC
        1300 GB/BP CDF
                     DUPL
                     OID 08890160
 89385
        BULK 1,2,3
                     CONC 86.0%
        >75UM A 6/5/00
                     XREC
        1400 GB/BP CDF
                     DUPL
                     DID
                          08890160
 89386
        BULK 1,2,3
                     CONC 86.9%
        >75UH B 6/5/00
                     XREC
        1400 GB/BP CDF
                     DUPL
                     OID
                          08890160
 BL#01
        METHOD BLANK 01 CONC 76.6%
                     XREC
                     DUPL
                     GID
                          08890160
        LCS 01
                     CONC 70.8%
                     %REC 70.8
                     OUPL
                     OID 08890160
 PTERP-S p-Terphenyl-D14(Surrogate (18-137 S))
```

\$108 FT E: 89525 DATE: 03 AUG C JOB DESCRIPTION: GREEN BAY MOBILE TRIMT PLT - DLIN-ESTES JOB NUMBER: 0054PD-92310183 RECEIPT DATE: 26 JUN 0 CHEM. PRESERVATIVE: TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 3 AUG DE .COLUMN...... 1 3 6 ANALYTE..... 2 4 5 6 7 8 MG/KG..... AS CD CR CU HG SAMP # DESCRIPTION RON 89585 C4B BULKA CONC 2.10 0.609 28.9 27.3 42.9 1.08 6/21/00 1100 %REC 94.6 92.4 87.8 80.8 98.0 112.3 GB NW DMP CELL4 DUPL 2.20 0.609 28.8 27.4 42.4 1 1.07 DID 01260215 01260215 01260215 01260215 01230209 04650189 HGA AUTH HGA AUTH HGA AUTH HGA AUTH 89586 C48 BULKB CONC 2.30 0.600 30.7 38.3 1 44.5 1.09 6/21/00 1100 XREC 2 BG NW DMP CELL4 DUPL 010 01260215 01260215 01260215 01260215 01230209 04650189 HGA AUTH HGA AUTH HGA AUTH HGA AUTH METHOD BLANK 01 CONC: <0.200 BL#01 <0.020 <0.100 0.600 [<1.00 1 <0.040 3 %REC DUPL 010 01260215 01260215 01260215 01260215 01230209 04650189 HGA AUTR HGA AUTH HGA AUTH HGA AUTH LCS 01 CONC 9.40 4.84 19.0 17.4 1 21.0 0.077 4 XREC 93.7 - 87.0 96.8 95.0. 105.0 102.1 DUPL OID 01260215 01260215 01260215 01260215 01230209 04650189 HGA AUTH HGA AUTH HGA AUTH HGA AUTH BL#03 EXTERNAL QC 01 CONC 88.3 37.1 22.5 86.9 11140 0.058 5 ZREC DUPL OID 01260215 01260215 01260215 01260215 01230209 04650189 HGA AUTH HGA AUTH HGA AUTH HGA AUTH 6 1º AS Arsenic Cadmium CR Chromium CU Copper Lead HG Mercury

JOS FALL	E: 89585							DATE:	1A E0
	*******	**** E	NVIRONMENTAL	CHEMISTRY BRANCH	- DATA REPORTING	G SHEET (PAGE	3 OF 3)	******	*****
	DESCRIPTION: GREE	U 64V	UNDILE TRIVE		ICB NII	M8ER: 0054PD-9	2310183	RECEIPT DATE:	26 11
	RESERVATIVE:	N BAI	modite in m	TET GETA ESTES		MPLE: SEDIMENT		COMPLETION DATE:	
	COLUMN			14 3 3					
	ANALYTE MG/KG			MO					
SAMP #	DESCRIPTION								
89585	C4B BULKA	CONC	134	0.299	I				
	6/21/00 1100		101.6	105.4					
	GB NW DMP CELL4	OID		0.299	1				
		•.•	HGA AUTH	,	,				
89586	C4B BULKB	CONC	146	0.400	1				
	6/21/00 1100 8G NW DMP CELL4	%REC			1				
			01230209 HGA AUTH	01260215	i				
BL#01	METHOD BLANK 01	CONC	<0.100	<0.100	ī				
		XREC			1 \				
		DUPL	01230209	01260215					
			HGA AUTH	•	•				
BL#02	LCS 01		19.6	5.00	1				
		XREC DUPL	98.0	100.0	, .				
			01230209	01260215					
			HGA AUTH	·					
BL#03	EXTERNAL QC 01	CONC	492	0.997	ļ				
		XREC DUPL			1				
		OID	01230209	01260215	i				
			HGA AUTH						
MN	Manganese				HO Hol	ybdenum			

	DESCRIPTION: GREE RESERVATIVE:	N BAY	MOBILE TRIMT	PLT - OLIN-ESTÉS -		UMBER: 0054PD-92 AMPLE: SEDIMENT		RECEIPT DATE: COMPLETION DATE:	26 JUN 13 JUL
	COLUMN ANALYTE UG/KG		† 137 PCB-1016	2 138 PC8-1221	3 139 PCB-1232	4 140 PCB-1242	5 141 PCB-1248	6 142 PCB-1254	
AMP #	DESCRIPTION								
9587	C4B BULK1 6/21/00 1100 BG NW DMP CELL4	CONC %REC DUPL	<12.7	<12.7 	<12.7 	<12.7 	3787	<12. 7	Í
		OID	54830182	54830182	54830182	54830182	54830182	54830182	1
9588	C48 BULKB 6/21/00 1100 G8 NW DMP CELL4	CONC.	<12.7	<12.7] <12.7 	*<12.7 	3722 	<12-7	
		OID	54830182	54830182	54830182	54830182	54830182	54830182	ļ
L#01 METHOD BLANK 01	METHOD BLANK 01	CONC ZREC DUP1	<8.3	<8.3 	[<8.3 [_ ;	<8.3 	<8.3 	<8.3 	
		:010	54830182	54830182	54830182	54830182	54830182	54830182	•
L#02 LCS	LCS 01	CONC XREC DUPL	0.97 116.0	N/A	N/A 	l ni/A	N/A	N/A	
		010	54830182	54830182	54830182	54830182	54830182	 54830182	1

JOB FILE: 85587 ' DATE: 13 JUL JOB DESCRIPTION: GREEN BAY MOBILE TRIMT PLT - OLIN-ESTES: JOB NUMBER: 0054PD-92310183 RECEIRT DATE: 26 JUN CHEM. PRESERVATIVE: TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 13 JUL COLUMN..... 7 ANALYTE..... 143 145 146 UG/KG..... PCB-1260 TclXYL-S DCLBP SAMP # DESCRIPTION 89587 C4B BULX1 CONC 41.9 1 98.4% 82.3% 6/21/00 1100 %REC BG NW DMP CELL4 DUPL 010 54830182 54830182 54830182 89588 C4B BULKB CONC 36.1 91.2% 1 84.1% 6/21/00 1100 %REC GB NW DMP CELL4 DUPL OID 54830182 54830182 54830182 BL#01 METHOD BLANK 01 CONC <8.3 89.5% 90.9% XREC DUPL. 010 54830182 54830182 54830182 BL#02 LCS 01 CONC 1.03 96.7% 95.6% %REC 124.0 DUPL 010 54830182 54830182 54830182 PCB-1260 PCB-1260 TctXYL-S 2,4,5,6-Tetrachloro-m-xylene(Surrogate(60-150 WS DCL8P Decachlorobiphenyl(Surrogate (60-150 WS)) 1.1%

DATE: 11 JL

	Additional Control of the Control of			<u>.</u> .	•			
JOB (DESCRIPTION: GREE RESERVATIVE:	EN BAY	HOBILE TRIMT PL	T - OLIN-ESTES		BER: 0054PD-92310183 PLE: SEDIMENT	RECEIPT DATE: COMPLETION DATE:	
	COLUMN			2.	3 '	.4		
	ANALYTE			95	100	104		
	MG/KG	****	TOC	TVS	OFC	TRPH		
SAMP #	DESCRIPTION							
89589	C48 BULK A	CONC	26100	<4	230	190		
	6/21/00 1100	2REC		Ì	1			
	GB NW DMP CELL4		25700	f ,	1			
		010	60040187	10150154	55990189	55990191		
89590	C48 BUKK B		22720					
37370	6/21/00 1100	CONC ZREC	28500	<4	210	180		
	GB NW DMP CELL4	DUPL		!	88.9	88.2		
		OID	60040187	10150154	 55990189	55990191		
BL#01	METHOD BLANK 01	CONC	<100	<4	<35·	[B J		
		XREC		l	į .	Î		
		DUPL		l	1	1		
		010	60040187	10150154	55990189	55990191		
3L#02	LCS 01	CONC	RAAN	- NZA	932	 1 948 1		
	,		94.6		91.7	93.3	. *	
		DUPL		. `	1	1 2		
		010	60040187	10150154	55990189	55990191		
L#03	EXTERNAL OC 01		20700	NZA	N/A	N/A		
		XREC .			!	Į Į		
		DUPL	600/0487	40450454				
		010	60040187	10150154	55990189	55990191		

INTERNAL QC DATA

Jobfile Number: 89589
Project: GREEN BAY MOBILE TRIMT PLT - OLIN-ESTES
Account Number: 0054PD-92310183.
Date Received: 26 JUN 00

Job#	Sample	Tst	Analyte	% REC	% SDUPL	RPD	OID
89589 89589	89590 89590 BL#02 BL#02	104 100	O&G TRPH O&G TRPH	88.9 88.2 91.7 93.3	87.7 86.9 91.2 93.0	1.4 1.5 0.5 0.3	55990189 55990191 55990189 55990191

Page 1

END OF REPORT

1.1%

110 13 110 13 11 193 FILL: 89591

DATE: 10 JUL

					_				
	COLUMN		1	2	3	4	5	<u>"</u> 6	
	ANALYTE		290 Naphth	294 ACENAY	296 ACENAP	297 FLUORE	BHENAN	304 Antrac	
	00/ KG		,marnin	NCCAX!	ACENAP	FLOORE	Euchyn	AKIKAC	
#. PMA	DESCRIPTION								Ì
19591	C48 BULK A	CONC	.121	1141	34.2	49.8	219	.43.8	Ŧ
	6/21/00 1100	%REC			1	1	1	1	i
	GB NU DMP CELL4	DUPL		!	1	1		1	ŀ
		ĠĮĎ	08890181	08890181	08890181	08890181	08890181	08890181	
9592	C48 BULK 8	CONC	126	17.3	1 48.3	1 57.0	238	49.3	1
	6/21/00 1100	%REC	40.0	58.5	62.5	77.5		87.5	ì
	GB NW DMP CELL4	DUPL		Ï	i	i i	Ť		i
		010	08890181	08890181	08890181	08890181	08890181	08890181	Ì
L#01	METHOD BLANK 01	CONC	<3.3	1 <3.3	1 3.3	1 <3.3	1 <3.3	<3.3	1
		%REC] .				
		DUPL	08890181	08890181	08890181	08890181	08890181	08890181	-
	•				•	·		•	•
L#02	LCS 01	CONC	40.0	43.7	49.0	52.0	53.7	54.7	1
		XREC	0.00	65.5	73.5	78.0	80.5	82.0	- 1
		DUPL				į.	ļ	1	1
		OID	08890181	08890181	08890181	08890181	08890181	08890181	1

******** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE ? OF

TOB	FI	LE:	89591

DATE: 10 JU

	DESCRIPTION: GREE RESERVATIVE:	EN BAY	MOBILE TRIMT	PLT - DLIN-ESTES		UMBER: 0054PD-9 VMPLE: SEDIMENT		RECEIPT DATE: COMPLETION DATE:	
	COLUMN		7	8	9	10	11	12	
	ANALYTE			307 PYRENE	309 CHRYSE	310 BAANTHR	313 BBFLANT	314	
SAMP #	DESCRIPTION			, , , , ,	GIRTSE	BRANTER	BBFLANI	BKFLANT	
89591	C4B BULK A 6/21/00 1100 GB NW DMP CELL4	CONC %REC DUPL	203	248	133 	110	72.5	69.5	1
		010	08890181	08890181	08890181	08890181	08890181	08890181	1
39592	C4B BULK B	CONC	231	278	163	140	97.7	77.3	ı
	6/21/00 1100 GB NW DMP CELL4	XREC DUPL			73.5	85.0	81.5	55.5	į
		010	08890181	08890181	08890181	08890181	68890181	08890181	i
BL#Ó1	METHOD BLANK 01	CONC XREC DUPL	<3.3	<3.3 	<3.3	<3.3 	<3.3	<3.3 	
		010	08890181	08890181	08890181	08890181	08890181	08890181	
3L#02	LCS 01	CONC	62.0	54.7	65.0	60.7	1 52.7	61.0	
		%REC DUPL	93.0	82.0	97.5	91.0	79.0	91.5	į
		OID	08890181	08890181	08890181	 08890181	08890181	08890181	-

FLANTHE Fluoranthene
CHRYSE Chrysene
BBFLANT Benzo(b)Fluoranthene

PYRENE Pyrene

BAANTHR Benzo(a)Anthracene

BKFLANT Benzo(k)Fluoranthene

C54

Section 1

Ĵ СВ СНЕМ. Р	DESCRIPTION: GRE RESERVATIVE:	EN BAY	MOBILE TRIMT	PLT - OLIN-ESTES -		UMBER: 0054PD-9	2310183	RECEIPT DATE:	26 JU
	COLUMN ANALYTE			14	15	16	17	18	
	UG/KG			316 [123PYR	317 DBAHANT	318 B-GH1-PY	322 2McNAPH	327 2F(BP-S	
SAMP #	DESCRIPTION								
89591	C4B BULK A 6/21/00 1100 GB NW DMP CELL4	CONC	102	75.0 	12.6	87.1	145	68.4%	Į.
	do MW DMP CECE4	DUPL DID	08890181	 08890181	08890181	 088901 81	 08890181	08890181	Ì
89592	C4B BULK B	CONC	133	89.0	18.3	[104	1 146	67.0%	
	6/21/00 1100 GB NW DMP CELL4	XREC DUPL	62.0	79.5	87.5	76.0	68.0	65.1	
		010	08890181	08890181	08890181	.08890181	08890181	08890181	1
BL#01	METHOD BLANK 01	CONC XREC DUPL	3.3	3.3	∢.3	<3.3 	3.3	78.1%	1
	•	010	08890181	08890181	D8890181	08890181	08890181	08890181	ł
BL#02	LCS 01	CONC	51.3	54.3	57.7	65.7	ĺ 42,7	1 70.6%	
		XREC DUPL	77.0	81.5	86.5	98.5	64.0		-
		010	08890181	08890181	08890181	08890181	08890181	[08890181	Ī

BAPYRE Benzo(a)Pyrene DBAHANT.

Dibenzo(A, H)Anthracene

2MeNAPH 2-Methylnaphthalenc

1123PYR Indeno(1,2,3-C,D)Pyrene

B-GHI-PY Benzo(G, H, I)Perylene

2FLBP-S 2-Fluorobiphenyl(Surrogate (30-115 S))

DATE: 10 JUL JOS FILE. 89591 JOB NUMBER: 0054PD-92310183 RECEIPT DATE: 26 JUN : JOB DESCRIPTION: GREEN BAY MOBILE TRIMT PLT - OLIN-ESTES COMPLETION DATE: 10 JUL : TYPE OF SAMPLE: SEDIMENT CHEM. PRESERVATIVE: COLUMN...... 19 ANALYTE..... 328 UG/KG..... PTERP-S RC SAMP # DESCRIPTION 89591 C48 BULK A CONC 73.9% 6/21/00 1100 %REC GB NW DMP CELL4 DUPL 010 08890181 CONC 77.0% 89592 C4B BULK B 6/21/00 1100 XREC 79.5 GB NW DMP CELL4 DUPL orp 088901\$1 METHOD BLANK 01 CONC 80.2% BL#01 %REC DUPL 010 08890181 BL#02 LCS 01 CONC 70.5% ZREC DUPL OID 08890181 PTERP-S p-Terphenyl-D14(Surrogate (18-137 S))

INTERNAL OC DATA

Jobfile Number: 89591
Project: GREEN BAY MOBILE TRTMT PLT - OLIN-ESTES
Account Number: 0054PD-92310183
Date Received: 26 JUN 00

Job#	Sample	Tst	Analyte	% REC	% SDUPL	RPD	OID
89591	89592	290	NAPHTH	40.0	51.5	25.1	08890181
89591	89592	294	ACENAY	58.5	58.5	0.0	08890181
89591	89592	296	ACENAP	62.5	60.5	3.3	08890181
89591	89592	297	FLUORE	77.5	75.5	2.6	08890181
89591	89592	304	ANTRAC	87.5	84.0	4.1	08890181
89591	89592	309	CHRYSE	73.5	77.0	4.7	08890181
89591	89592	310	BAANTHR	85.0	94.5	10.6	08890181
89591	89592	313	BBFLANT	81.5	75.5	7.6	08890181
89591	89592	314	BKFLANT	55.5	60.0	7.8	08890181
89591	89592	315	BAPYRE	62.0	67.0	7.8	08890181
89591	89592	316	I123PYR	79.5	79.5	:0.0	08890181
89591	89592	317	DBAHANT	87.5	8750.0	196.0	08890181
89591	89592	318	B-GHI-PY	76.0	75.0	1.3	08890181
89591	89592	322	2MeNAPH	68.0	65.5	3.7	08890181
89591	89592	327	2F1BP-S	65.1	65.0	0.2	08890181
89591	89592	328	PTERP-S	79.5	81.1	2.0	08890181

Page 1

END OF REPORT

403 DE: 89723

DATE: 03 AUG

			ENVIRONMENTAL	•					
	DESCRIPTION: GREE RESERVATIVE:	EN BAY	MOBILE TRAT	PLANT - DLIN-ESTES		B NUMBER: 0054PD-		RECEIPT DATE: COMPLETION DATE:	03 JUL 3 AUG
	COLUMN		1	2	3	4	5	6	•
	ANALYTE		2	4	5	6	7	8	
	MG/KG	• • • • • •	AS	CD	CR	cu	P8	нс	
SAMP #	DESCRIPTION								,
9723	BULK 1,2,3 >2.0	CONC	1.80	0.669	41.3	27.3	40.9	0.625	1
		XREC	95.4	91.4	81.2	76.8	99.2	1 105.2	- 1
		DUPL	1.80	0.699	43.5	29.0	41.9	0.631	- 1
		010	01260215	01260215	01260215	01260215	01230209	04650199	!
				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH	1 04030133	I
9724	BUEK 1,2,3 <2.0	%REC	2.99	1.94	85_2	97.2	51.0	2.20	!
		DUPL	012/02/5	1 000/0000			!		- 1
		OID	01260215	01260215	01260215	01260215	01230209	04650199	
				HGA AUTH	HGA AUTH	RGA AUTH	HGA AUTH		
L#01	METHOD BLANK 01	CONC. XREC DUPL	<0.200	<0.020 	<0.100	0.600	<1.00	<0.040 	
		010	01260215	01260215	01260215	01260215	01230209	04650199	i
				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH	*	'
L#02	LCS 01		9.40	4.80	19.0	17.4	21.0	0.0752	1
		XREC DUPL	93.7	96.8	95.0	. 87.0	105.0	100.3	İ
		OID	01260215	01260215	01260215	01260215	01230209	04650199	-
				HGA AUTH	HGA . AUTH	HGA AUTH	HGA AUTH	1 44020177	'
.#03	EXTERNAL QC 01	CONC	88.3	37.1	22.5	86.9	1140	0.053	1
		XREC				1	1	1	i
		DUPL		ł	1	1	1		i
		OID	01260215	01260215	01260215	01260215	01230209	04650199	i
				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH	-	•
:	Arsenic				CD	Cadmium			•
:	Chromium				EU	Copper			
3	Lead				HG	Mercury			

JOB FILE: 89723 DATE: 03 AUG C JOB DESCRIPTION: GREEN BAY MOBILE TRNT PLANT - OLIN-ESTES JOB NUMBER: 0054PD-92310183 RECEIPT DATE: 03 JUL C CHEM. PRESERVATIVE: TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 3 AUG 0 COLUMN...... 7. 10 11 12 ANALYTE..... 9 10 11 13 25 30 MG/KG.....NI SE AG ZN BA FE SAMP # DESCRIPTION RC 89723 BULK 1,2,3 >2.0 CONC 17.2 0.599 0.400 91.5 70.7 14600 **WREC 96.2** 84.8 94.4 89.2 97.8 230.0 DUPL 17.5 0,599 0.400 91.3 71.8 14800 010 01230209 01260215 01260215 01230209 01230209 01230209 HGA AUTH HGA AUTH 89724 BULK 1,2,3 <2.0 CONC 17.4 0.998 0.599 1.128 73.5 7850 **XREC** DUPL OID 01230209 01260215 01230209 01230209 01260215 01230209 HGA AUTH HGA AUTH

<0.100

01260215

4.50

1 4.49

90.8

01260215

HGA AUTH

HGA AUTH

<1.00

01230209

01230209

49.9

. 1 99.8

1 282

<0.100

01230209

51.0

102.0

01230209

01230209

195

1 <2.00

01230209

.] 110

110.0

24900

01230209

01230209

XREC DUPL 010 01230209 01260215 01260215 01230209 RGA AUTH HGA AUTH NI Nickel SE Setenium AG Silver ZH Zinc BA Barium FE Tron

<0.200

01260215

4.10

82.8

1.69

01260215

BL#01

BL#02

BL#03

LCS 01

EXTERNAL OC 01

METHOD BLANK 01 CONC 1.20

XREC DUPL 010

XREC

DUPL OID 01230209

HGA AUTH

108.0

01230209

HGA AUTH

CONC 21.6

CONC 16.6

	100										
,	J08 FIL	E: 89723								DAT	TE: 03 AL
	******	*******	****	ENVIRONMENTAL	CHEMISTRY BRANCH	- DATA	REPORTING SH	EET (PAGE 3	OF 3	} ***********	******
				•	•						
	CHEM DI	DESCRIPTION: GRE RESERVATIVE:	EH BAY	MOBILE TRNT	PLANT - OLIN-ESTES				183	RECEIPT DAT	E: 03 JL
	0112111					•	PE OF SAMPLE	: SEDIWENT		COMPLETION DAT	E: 3 AU
		COLUMN			14						
		MG/KG			33 MO						
	SAMP #	DESCRIPTION									
	89723	DIHK 4 2 7 - 2 0		200	1						
	97167	BULK 1,2,3 >2.0		104.0	0.200	1					
			DUPL		0.200						
			OID	01230209	01260215	į					
				HGA AUTH							
	89724	BULK 1,2,3 <2.0	CONC	434	0.699	1					
			XREC			į		•			
			DUPL	01230209	01260215	1					
			010	HGA AUTH	01200213	i					
	BL#01	METHOD BLANK 01		<0.100	<0.100	1					
			XREC DUPL		1	`					
				01230209	01260215						
				HGA AUTH		•					
	BL#02	LCS 01	CONC	19.6	5.00	i		**			
			ZREC	98.0	100.2	1					
			DUPL	01230209	01260215	!			*		
				HGA AUTH	1 0.000013	'					
1	BL#03	EXTERNAL QC 01	CONC	492	0.997	ı					
			%REC		1	!					
			DID	01230209	01260215						
				HGA AUTH	1	•					
P	ми	Manganese				ж	Molybden	eum			
							, 230,				
		_									
		•									
										•	

PK -: |17/100 . . .

JOB FILE: 89725

ATE: 17 JUS

	ESERVATIVE:	EN BAT	MOBILE IKRT I	PLANT - OLIN-ESTES	JOB NU	MBER: 0054PD-92 MPLE: SEDIMENT	310183	RECEIPT DATE: 0 COMPLETION DATE: 1
	COLUMN		1	2	3	.4	.5	Ď.
	ANALYTE		137	138	139	140	141	142
	UG/KG		PC8-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PC8-1254
SAMP #	DESCRIPTION							
89725	BULK 1,2,3 >2.0	CONC	<15.8	<15.8	<15_8	351	<15.8	1 <15.8
		XREC	74.4	1	i	İ	1	i
		DUPL		j –	1	1	1	i
		OID	54830193	54830193	54830193	54830193	54830183	54830193
89726	BULK 1,2,3 <2.0	CONC	×27.1	i≪27.₁	<27.1	3278	I <27. 1	₹27.1
		%REC		1	1	1 3270	1 -61-11	[251+1]
		DUPL		i	i	i	i	1
		010	54830196	54830196	54830196	54830196	54830196	54830196
BL#01	METHOD BLANK 01	CONC	<8.3	l <8.3	l <8.3	و في ا		
	THE PERMIT OF	XREC DUPL	10.5	1 10.3	1 40.5	<8.3 	<8.3 	<8.3
		OID	54830193	54830193	54830193	54830193	54830183	54830193
3L#02	LES 01	CONC	0.86	I N/A	l N/A	N/A	N/A	Ì NZA:
		XREC	102.8		1	177	1 20%	1 770:
		DUPL		i	i .	i		i
		OID	54830193	54830193	54830193	54830193 -	54830183	54830193
CB-1016	PCB-1016				PC8-1221 PCB	-1221		
	PCB-1232					-1242		
	PCB-1248				PCB-1254 PCB			

JOB FILE: 89725 DATE: 17 JU JOB NUMBER: 0054PD-92310183 JOB DESCRIPTION: GREEN BAY MOBILE TRNT PLANT - OLIN-ESTES RECEIPT DATE: 03 JU: TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 17 JU CHEM. PRESERVATIVE: COLUMN...... 7 8 ANALYTE..... 143 145 146 UG/KG..... PCB-1260 TclXYL-S DCLBP SAMP # DESCRIPTION BULK 1,2,3 >2.0 CONC 27.3 93.5% 1 75.3% 89725 %REC 85.2 88.9 74.4 DUPL DID 54830193 54830193 54830193 BULK 1,2,3 <2.0 CONC 111 84.0% 84.9% %REC DUPL OID 54830196 54830196 54830196 BL#01 METHOD BLANK 01 CONC <8.3 96.6% 80.1% %REC DUPL 54830193 54830193 54830193 010 99.1% BL#02 LCS 01 CONC 0.88 81.8% %REC 106.0 DUPL 54830193 54830193 54830193 TclXYL-S 2,4,5,6-Tetrachloro-m-xylene(Surrogate(60-150 WS PCB-1260 PCB-1260 Decachlorobiphenyl(Surrogate (60-150 WS))

INTERNAL QC DATA

Jobfile Number: Project: Account Number: Date Received: 89725

100

GREEN BAY MOBILE TRNT PLANT - OLIN-ESTES 0054PD-92310183

03 JUL 00

Job#	Sample	Tst	Analyte	% REC	% SDUPL	RPD	OID
89725	89725	145	PCB-1260 TclxYL-S DCLBP	85.2 88.9 74.4	84.8 86.7 73.0	0.5 2.5 1.9	54830193 54830193 54830193

Page 1

END OF REPORT

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- 17	L .
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•	') /
-	117/00
	11 11 "
- 7	77
- /	

UB FILE	: 89727							DATE:	17 JUL
*****	********	**** [ENVIRONMENTAL	CHEMISTRY BRANCH	DATA REPORTIN	G SHEET (PAGE	1 OF 4) ***	******	******
		N BAY	MOBILE TRNT I	PLANT - OLIN-ESTES	•	MBER: 0054PD-92			03 JUL
HEM. PR	ESERVATIVE:				TYPE OF SA	MPLE: SEDIMENT	CO	APLETION DATE:	17 JUL
	COLUMN		1	2	3	4	5	6	
	ANALYTE		290	294	296	297	303	304	
	UG/KG	• • • • •	NAPHTH	ACENAY	ACENAP	FLUORE	PHENAN	ANTRAC	
AMP#	DESCRIPTION								;
9727	BULK 1,2,3 >2.0	CONC	29.9	1 <6.4	1 <6.4	10.8	70.0	10.2	-
		%REC	46.0	50.0	64.0	1 67.5	71.5	70.5	i
		DUPL		į	i	i	i	i	i
		010	08890198	08890198	08890198	08890198	08890198	08890198	İ
0700	Nu v 4 3 7 -2 0		F47	1 (2.4	1.70.0	1.440	1 4400	Loss	
9728	BULK 1,2,3 <2.0	CONC	513	43.4	72.0	169	1180	215	!
		*REC	•		1	1		-	1
		DUPL	08890198	08890198	08890198	05890198	89109880	08890198	
1.40.1	HETHOD BLANK OF	cove	-7 7	1 .2 2	1 42 2	1 -7 7	1 -2 2	1 -2 2	,
L#01	METHOD BLANK 01	CONC	<3.3	<3.3	₹3.3	<3.3	<3.3	<3.3	!
		DUPL			1		-		ł
		OID	08890198	08890198	08890198	08890198	08890198	08890198	i
				•				,	'
L#02	LCS 01	CONC	36.0	1 34.0	1 44.7	45.3	48.3	43.3	1
		XREC	54.0	51.0	67.0	68.0	72.5	65.0	i
		DUPL		i	i	i .	i	i	i
		010	08890198	08890198	08890198	08890198	08890198	08890198	İ
						1.1.1			
APHTH CENAP	Naphthalene Acenaphthene					naphthylene Iorene			

C64

IOR ETTE: 80727

DATE: 17 JUL

	ESCRIPTION: GREE ESERVATIVE:	M BAY	MOBILE TRNT P	LANT - OLIN-ESTES	TYPE OF SA			RECEIPT DATE: COMPLETION DATE:	
	COLUMN		7	8	. 9.	10	11	12	
	ANALYTE		306	307	309	310	313	314	
	UG/KG			PYRENE	CHRYSE	BAANTHR	BBFLANT	BKFLANT	
SAMP #	DESCRIPTION								
B9727	BULK 1,2,3 >2.0	CONC	99.9	82.1	66.2	29.9	53.4	1 32.4	ı
		XREC	85.0	85.0	88.5	94.5	90.0	78.0	í
		DUPL		1	1	1	1	1	i
		010	08890198	08890198	08890198	08890198	08890198	08890198	Ì
89728		*****		1	1				
39728	BULK 1,2,3 <2.0	CONC	1690	1570	992	720	762	521	. !
		DUPL	•	1	1	1	· ·	1	
		DID	08890198	08890198	08890198	08890198	08890198	08890198	
		÷			<u>y</u>			1	
SL#01	METHOD BLANK 01	CONC	<3.3	<3.3	.] <3.3	<3.3	<3.3] <3.3	
		XREC		1	1	1	1	1	Ĵ
		DUPL			1				
		OID	08890198	08890198	08890198	08890198	08890198	08890198	
BL#02	LCS 01	CONC	50.0	1 42.3	1 59.3	51.0	1 60.0	61.0	1
* 1		XREC	75.0	63.5	89.0	76.5	90.0	91.5	í
		DUPL		İ	i.		i		i
		OID	08890198	08890198	08890198	08890198	08890198	08890198	

JOB FILE: 89727 DATE: 17 JUI JOB DESCRIPTION: GREEN BAY MOBILE TRNT PLANT - DLIN-ESTES JOB NUMBER: 0054PD-92310183 RECEIPT DATE: 03 JUL CHEM. PRESERVATIVE: TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 17 JUL COLUMN...... 13 14 15 16 17 18 ANALYTE..... 315 316 317 318 322 327 UG/KG..... BAPYRE 1123PYR DBAHANT B-GHI-PY 2MeNAPH 2FLBP-S DESCRIPTION BULK 1,2,3 >2.0 CONC 35.6 39.4 5.1 J 48.3 1 31 8 72.6% %REC 79.0 92.0 88.0 88.5 62.5 DUPL CIO 08890198 08890198 08890198 08890198 08890198 08890198 89728 BULK 1,2,3 <2.0 CONC 747 1 637 1 105 678 574 1 52.4% **ZREC** DUPL OID 08890198 08890198 08890198 08890198 08890198 08890198 BL#01 METHOD BLANK 01 CONC <3.3 <3.3 <3.3 | <3.3 | <3.3 77.6% %REC DUPL OID 08890198 08890198 08890198 08890198 08390198 08890198 BL#02 LCS 01 CONC 50.0 1 54.7 60.3 57.7 40.3 67.6% XREC 75.0 82.0 90.5 86.5 60.5 DUPL 08890198 1.08890198 08890198 08890198 08890198 08890198 BAPYRE Benzo(a)Pyrene 1123PYR Indeno(1,2,3-C,D)Pyrene DBAHANT Dibenzo(A, H)Anthracene B-GHI-PY Benzo(G,H,1)Perylene 2HcNAPH 2-Methylnaphthalene 2FlBP-S 2-Fluorobiphenyl(Surrogate (30-115 S)) ı Ç

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JOB FILE: 89727
                                                                                     DATE: 17 JUL
JOB DESCRIPTION: GREEN BAY MOBILE TRNT PLANT - OLIN-ESTES
                                                                               RECEIPT DATE: 03 JUL
                                                   JOB NUMBER: 0054PD-92310183
CHEM. PRESERVATIVE:
                                                TYPE OF SAMPLE: SEDIMENT
                                                                             COMPLETION DATE: 17 JUL
           COLUMN...... 19
           ANALYTE..... 328
           UG/KG.... PTERP-S
      DESCRIPTION
                                                                                               ŝ
      BULK 1,2,3 >2.0 CONC 64.9%
                   XREC 63.5
                   DUPL
                  010
                       08890198
89728
      BULK 1,2,3 <2.0 CONC 63.4%
                   XREC
                   DUPL
                   OID
                       08890198
      METHOD BLANK 01 CONC 65.2%
                   ZREC 
                   DUPL
                   OID 08890198
BL#02
      LCS 01
                   CONC 58.8%
                   XREC
                   DUPL
                   010 08890198
PTERP-S p-Terphenyl-D14(Surrogate (18-137 S))
```

INTERNAL QC DATA

Jobfile Number: 89727

Project: GREEN BAY MOBILE TRNT PLANT - OLIN-ESTES
Account Number: 0054PD-92310183
Date Received: 03 JUL 00

Job#	Sample	Tst	Analyte	% REC	% SDUPL	RPD	OID
89727	89727	290	NAPHTH	46.0	56.0	19.6	08890198
89727	89727	294	ACENAY	50.0	49.5	1.0	08890198
89727	89727	296	ACENAP	64.0	67.5	5.3	08890198
89727	8972 7	297	FLUCRE	67.5	67.5	0.0	08890198
89727	89727	303	PHENAN	71.5	73.5	2.8	08890198
89727	89727	304	ANTRAC	70.5	73.0	3.5	08890198
89727	89727	306	FLANTHE	85.0	98.0	14.2	08890198
89727	89727	307	PYRENE	85.0	88.5	4.0	08890198
89727	89727	309	CHRYSE	88.5	89.5	1.1	08890198
89727	89727	310	BAANTHR	94.5	96.0	1.6	08890198
89727	89727	313	BBFLANT	90.0	90.0	0.0	08890198
89727	89727	314	BKFLANT	78.0	74.0	5.3	08890198
89727	89727	315	BAPYRE	79.0	84.0	6.1	08890198
89727	89727	316	I123PYR	92.0	87.0	5.6	08890198
89727	89727	317	DBAHANT	88.0	81.5	7.7	08890198
89727	89727	318	B-GHI-PY	88.5	82.5	7.0	08890198
89727	89727	322	2MeNAPH	56.0	66.0	16.4	08890198
89727	89727	327	2FlBP-S	62.5	69.0	9.9	08890198
89727	89727	328	PTERP-S	63.5	63.9	0.6	08890198

Page 1

END OF REPORT

JOB FILE: 89729 DATE: 14 JUL (*** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF JOB DESCRIPTION: GREEN BAY MOBILE TRNT PLANT - OLIN-ESTES RECEIPT DATE: 03 JUL C JOB NUMBER: 0054PD-92310183 CHEM. PRESERVATIVE: TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 14 JUL E 2 3 COLUMN:.... 1 ANALYTE..... 86 95 100 104 MG/KG..... TOC TVS 08.G TRPH SAMP # DESCRIPTION R£ 89729 BULK 1,2,3 >2.0 CONC 27800 1.46 | 54 B 1 67 **XREC** DUPL 28400 60040193 10150188 OID 55990189 55990191 89730 BULK 1,2,3 <2.0 CONC 47700 640 %REC DUPL 010 10150188 55990189 55990191 METHOD BLANK D1 CONC <100 <35 181 XREC DUPL DID 60040193 10150188 55990189 55990191 BL#02 932 LCS 01 CONC 9890 N/A 948 XREC 98.9 91.7 93.3 DUPL 10150188 55990191 DID 60040193 55990189 BL#03 EXTERNAL QC OT CONC 19000 N/A N/A N/A XREC DUPL OID 60040193 10150188 55990189 55990191 TOC Total Organic Carbon TVS Total Volatile Solids O&G Oil and Grease TRPH Total Recoverable Petroleum Hydrocarbons

INTERNAL QC DATA

Jobfile Number: 89729
Project: GREEN BAY MOBILE TRNT PLANT - OLIN-ESTES
Account Number: 0054PD-92310183
Date Received: 03 JUL 00

Job#	Sample	Tst	Analyte	왕	REC	ક	SI	DUPL	RPD		OID	
												-
89729	BL#02	100	O&G	9	1.7	9	1.2	2	0.	5	55990189	J
89729	BL#02	104	TRPH	.9	3.3	9	3.0	0	0.	3	55990191	

Page 1

END OF REPORT

1.17

JOB D	ESCRIPTION: GREE	N BAY	- OLIN-ESTES		JOB NU	MBER: 0054PD-92	310183	RECEIPT DATE:	15 AUG
HEM. PR	ESERVATIVE: NONE				TYPE OF SAI	MPLE: WATER		COMPLETION DATE:	30 AUG
	COLUMN	,	1	2	3	4	5	6	
	ANALYTE		137	138	139	140	141	142	
	PP8		PCB-1016	PCB-1221	PCB-1232	PCB-1242	PC9-1248	PCB-1254	
MP #	DESCRIPTION								
789	GREEN BAY	CONC	<0.24	<0.24	<0.24	<0.24	<0.24	0.24	- 1
Ċ	SUPPLY WATER	XREC		i	1	1	1	1	
	8/10/00 0930	DUPL		İ	l and		1	ĵ.	1.
		OID	54830238	54830238	54830238	54830238	54830238	54830238	ļ
# 01	METHOD BLANK 01	CONC	<0.25	1 <0.25	<0.25	<0.25	<0.25	<0.25	ŀ
	,	%REC		i	i "`	i "	1	İ	ĺ
		DUPL		İ	i	Ï	1	İ	Ì
		OID	54830238	54830238	54830238	54830238	54830238	54830238	1
L#02	ECS 01	COND	0.24	N/A	l N/A	∫ N/A.	N/A	i N/A	ľ
		XREC	96.0	i	i ·	j	Ì		1
		DUPL		İ	i	İ	Ĺ	1	į
		DID	54830238	54830238	54830238	54830238	54830238	54830238	. 1
n 4044	nen 4046				PCB-1221 PCB	-1221			
B-1016					PCB-1242 PCB				
CB-1232	PCB-1232				PCB-1254 PCB				

DATE: 31 AUG C JOB FILE: 90789 JOB NUMBER: 0054PD-92310183 RECEIPT DATE: 15 AUG C -JOB DESCRIPTION: GREEN BAY - OLIN-ESTES COMPLETION DATE: 30 AUG (CHEM. PRESERVATIVE: NONE TYPE OF SAMPLE: WATER COLUMN..... 7 145 146 ANALYTE..... 143 PPB..... PCB-1260 TCLXYL-S DCLBP RC SAMP # DESCRIPTION 71.3% 67.5% 90789 GREEN BAY CONC <0.24 SUPPLY WATER %REC 8/10/00 0930 DUPL 54830238 010 54830238 54830238 75.3% METHOD BLANK 01 CONC <0.25 77.9% XREC DUPL 010 54830238 54830238 54830238 1 77.8% 74.9% CONC 0.24 BL#02 LCS 01 %REC 96.0 DUPL 54830238 DID 54830238 54830238 TolXYL-S 2,4,5,6-Tetrachloro-m-xylene(Surrogate(40-140 WS PCB-1260 PCB-1260 DCLBP Decachlorobiphenyl(Surrogate (40-140 WS))

AK 100 90808

DATE: 31 AUG 0

	DESCRIPTION: GREE RESERVATIVE:	Ņ BAY	OLIN-ESTES			MBER: 0054PD-92 MPLE: SEDIMENT		RECEIPT DATE:	
	COLUMN		1	2	3	4.	5	6	
	ANALYTE			138	139	140	141	142	
	UG/KG		PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254	
SAMP #	DESCRIPTION								1
90808	GREEN BAY	CONC	<8.69	<8.69	<8.69	143	<8.69	<8.69	Ï
	1400-1 8/10/00	*REC	134.8	İ	1	ļ	ļ	ļ.	!
	UNDERFLOW	DUPL				 E/970378	 54830238	54830238	-
		010	54830238	54830238	54830238	54830238	1 34630236	34030230	į
90809	GREEN BAY	CONC	<9.08	<9.08	<9.08	j 154	<9.08	<9.08	1.
	1400-2 8/10/00	%REC		Í		· !	!		.]
	UNDERFLOW	DUPL		6/870378	 54830238	 54830238	54830238	 54830238	1
	•	ato	54830238	54830238	54630236	1 34630236	1 34030230	J 34000E30	1.
90810	GREEN BAY	CONC	<9.37	<9.37	<9.37	88.3	<9.37	<9.37	ļ
	1505-1 8/10/00	XREC		ļ	ļ	ļ	ļ	1.	. !
	UNDERFLOW	DUPL.		5/070378	 54830238	 54830238	54830238	54830238	1
		OID	54830238	54830238	34630236	1 34830230	7 54050250	3400000	,
90811	GREEN BAY	CONC	<8.80	<8,80	<8.80	126.	<8.80	<8.80	Ţ
	1505-2 8/10/00	ZREC		1	1	ļ	1	ļ	- !
	UNDERFLOW	DUPL	F / B70070	54830238	54830238	 54830238	54830238	54830238	1
		010	54830238	1 34830230	1 34030230	1 34830230) 34d30E30	1 343333	
90812	GREEN BAY	CONC	<8.88	<8.88	<8.88	153	<8.88	<8.88	ļ
•	1525-1 8/10/00	XREC				ļ		1	- 1
	UNDERFLOW	DUPL	54830238	l 1 54830238	 54830238	 54830238	54830238	54830238	1
		·OID	34030230	1 34030030	1 2 100 100	,		•	
90813	GREEN BAY	CONC	<8.93	<8.93	<8.93	160	<8.93	<8.93	!
	1525-2 8/10/00	%REC		!	- [!	ļ	- 1
	UNDERFLOW	DUPL	54830238	54830238	54830238	54830238	i 54830238	54830238	i
		OID	74070238	OCSUCOPC	.[.Jeosocoa	, , ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1 2,	1	•
PCB-101	16 PCB-1016				PCB-1221 PC	8-1221			
	32 PCB-1232				PCB-1242 PC				
PCB-124	48 PCB-1248				PCB-1254 PC	8-1254			

DATE: 31 AUG (JOB .FILE: . 90808 ; JOB NUMBER: 0054PD-92310183 RECEIPT DATE: 17 AUG (JOB DESCRIPTION: GREEN BAY - OLIN-ESTES TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: .31 AUG (CHEM, PRESERVATIVE: 5 COLUMN 1 140 141 142 ANALYTE..... 137 138 139 PCB-1248 PCB-1254 UG/KG..... PCB-1016 PCB-1221 PCB-1232 PCB-1242 SAMP # DESCRIPTION <9.21 <9.21 GREEN BAY CONC <9.21 <9.21 <9.21 154 %REC 1625-1 8/10/00 UNDERFLOW DUPL 54830238 54830238 OID 54830238 54830238 54830238 54830238 <9.02 90815 GREEN BAY CONC <9.02 <9.02 <9.02 1 180 1 <9.02 1625-2 8/10/00 ZRFC. UNDERFLOW DUPL OID 54830238 54830238 54830238 54830238 54830238 54830238 <8.60 130 <8.60 <8.60 1 <8.60 90816 GREEN BAY CONC <8.60 1715-1 8/10/00 XREC UNDERFLOW DUPL 54830238 54830238 54830238 54830238 54830238 010 54830238 90817 GREEN BAY CONC <8.87 <8.87 <8.87 1 152 <8.87 I <8.87 1715-2 8/10/00 %REC UNDERFLOW DUPL OID 54830238 54830238 54830238 54830238 54830238 54830238 <16.3 <16.3 CONC <16.3 | <16.3 <16.3 90818 GREEN BAY FEED 1400-1 8/10/00 YREC DUPL 54830238 54830238 54830238 54830238 54830238 010 54830238 | <17.4 | <17.4 90819 GREEN BAY FEED CONC - <17.4 1 <17.4 1 <17.4 2999 1501-1 8/10/00 %REC DUPL 54830238 OID 54830238 54830238 54830238 54830238 54830238 PCB-1221 PCB-1221 PCB-1016 PCB-1016 PCB-1242 PCB-1242 PCB-1232 PCB-1232 PC8-1254 PC8-1254 PCB-1248 PCB-1248

	ESCRIPTION: GREE ESERVATIVE:	N BAY	- OLIN-ESTES			MBER: 0054PD-92 MPLE: SEDIMENT		RECEIPT DATE:	
	COLUMN		1	2	3	4	5.	. 6	
	ANALYTE			138	139	140	141	142	
	υG/KG	• • • • • •	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254	
AMP #	DESCRIPTION								
0820	GREEN BAY FEED	CONC	<13.2	<13.2	<13.2	2137	<13.2	<13.2	ł
	1525-1 8/10/00	%REC		i i	i	Ì	1	i	i
		DUPL		İ	İ	Ĺ	ĺ	İ	i
		010	54830238	54830238	54830238	54830238	54830238	54830238	Ì
anne'		eeue.	maki in	tian n	1 44 0	Lavor	Laura	Linera	
0821	GREEN BAY FEED 1625-1 8/10/00	ZREC	<14.2	ļ <14.2	<14.2	2108	<14.2	<14.2	-
	1023-1 0/10/00	DUPL					i	Ī	-
		OID	54830238	54830238	54830238	54830238	54830238	54830238	i
عددد.		251.2			t and	L shekir	ľ an i		
0822	1715-1 8/10/00	XREC	<12.1	<12.1 	<12.1	1969 	<12.1 	<12.1	-
		DUPL		İ	İ	İ.	İ	i	ĺ
		OID	54830238	54830238	54830238	54830238	54830238	54830238	I
L#01	METHOD BLANK 01	CONC	<6.25	<6.25	<6.25	<6.25	<6.25	<6.25	ì
	TIETHOU DENNING OF	ZREC		5125	1				i
		DUPL		i		i	i	i	i
	•	QIO	54830238	54830238	54830238	54830238	54830238	54830238	İ
	Mad as	*****	\ 	1		1 000	1 444	t uu	
L#02	LCS 01		0.625 100.0	N/A	N/A	H/A	N/A	J NZA	- }
		ZREC	100.0					- }	- 1
		OID	54830238	54830238	54830238	54830238	54830238	54830238	i
	PCB-1016				PCB-1221 PCB				
CB-1232	PCB-1232				PCB-1242 PCB	1-1242			

DATE: 31 AUG (JOB. FILE: 90808 JOB NUMBER: 0054PD-92310183 JOB DESCRIPTION: GREEN BAY - CLIN-ESTES RECEIPT DATE: 17 AUG (CHEM. PRESERVATIVE: TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 31 AUG (COLUMN..... 7 10 ANALYTE..... 143 145 900 146 UG/KG..... PCB-1260 TclXYL-S DCLBP X MOISTU SAMP # DESCRIPTION 83.5% 16% 90808 GREEN BAY CONC 13.7 83.2% 1400-1 8/10/00 %REC 89.6 81.6 65.8 UNDERFLOW DUPL 54830238 54830238 54830238 55150234 OID 90809 GREEN BAY CONC 21.2 80.5% 87.0% 19.1% 1400-2 8/10/00 XREC. UNDERFLOW DUPL 010 54830238 54830238 54830238 55150234 90810 CONC 7.48 J 82.8% 76.6% 21.6% GREEN BAY 1505-1 8/10/00 **XREC** UNDERFLOW DUPL 54830238 55150234 010 54830238 54830238 GREEN BAY CONC 3.69 J 82.4% 74.8% 16.6% 1505-2 8/10/00 ZREC UNDERFLOW DUPL OID 54830238 54830238 54830238 55150234 87.3% 18.1% 90812 GREEN BAY CONC 7.23 J 74.7% 1525-1 8/10/00 **XREC** UNDERFLOW DUPL 55150234 010 54830238 54830238 54830238 85.5% 1 86.6% 18.5% 90813 GREEN BAY CONC 14.9 1525-2 8/10/00 %REC UNDERFLOW DUPL OID 54830238 54830238 54830238 55150234 TclXYL-S 2,4,5,6-Tetrachloro-m-xylene(Surrogate(40-140 WS PCB-1260 PCB-1260 % MOISTU PERCENT MOISTURE Decachlorobiphenyl(Surrogate (40-140 WS))

	ESCRIPTION: GREE ESERVATIVE:	EN BAY	- OLIN-ESTES			MBER: 0054PD-92310183 MPLE: SEDIMENT	RECEIPT DATE: 17 AUG	
	COLUMN		7	8	.9	10		
	ANALYTE		143	145	146	900		
	UG/KG	•••••	PCB-1260	TCLXYL-S	DCLBP	% HOISTU		
SAMP #	DESCRIPTION			•				
0814	GREEN BAY 1625-1 8/10/00	XREC	14.5	79-4%	90.8% 	21.2% 		
	LINDERFLOW	DUPL	54830238	54830238	54830238	55150234		
20815	GREEN BAY 1625-2 8/10/00 UNDERFLOW	CONC XREC DUPL	12.4	78.4% 	71.4%	19.7%		
	BASEI(FEGH	OID	54830238	54830238	54830238	55150234		
20816	GREEN BAY 1715-1 8/10/00 UNDERFLOW	CONC XREC DUPL	14.3	76.6X	91.2%	16.0%		
	ONDERTEON	010	54830238	54830238	54830238	55150234		
0817	GREEN BAY 1715-2 8/10/00 UNDERFLOW	CONC %REC DUPL	9.70	74.8% 	66.8%	17.3x		
		OID	54830238	54830238	54830238	55150234		
20818	GREEN BAY FEED 1400-1 8/10/00	CONC %REC	164	811.2% 	91.4%	52.5% 		
		GID	54830238	54830238	54830238	55150234		
0819	GREEN BAY FEED 1501-1 8/10/00	CONC %REC DUPL	236	80.9%	97.1%	55.5%		
		OID	54830238	54830238	54830238	55150234		

JOB, FILI	E: 90808								DATE: 31 At
*****	*******	****	ENVIRONMENTAL	CHEMISTRY BRANCH	- DATA REPORTI	NG SHEET (PAGE	6 OF 6) ******	
•						•			
	DESCRIPTION: GRE RESERVATIVE:	EN BAY	- OLIN-ESTES		TYPE OF SA	JMBER: 0054PD-92 MMPLE: SEDIMENT	310183	RECEIPT COMPLETION	DATE: 17 AL DATE: 31 AL
	COLUMN ANALYTE UG/KG	•••••	7 143 PCB-1260	8 145 Tolxyl-S	9 146 DCLBP	10 900 % MOISTU			
SAMP #	DESCRIPTION								
90820	GREEN BAY FEED 1525-1 8/10/00	CONC XREC DUPL	166	† 78.3% 	98.7%	41.1% 	 		
		010	54830238	54830238	54830238	55150234	i		
90821	GREEN BAY FEED 1625-1 8/10/00	CONC XREC DUPE	160	79.2%	86.2%	44.9%			
		OID	54830238	54830238	 54830238	55150234	[
70822	GREEN BAY FEED 1715-1 8/10/00	CONC 2REC	163	78.8%	90.5%	36.3%			
		DUPL	54830238	54830238	54830238	55150234	1		
BL#01	METHOD BLANK 01	XREC	<6.25	95.2% 	83.1%	N/A 			
		DUPL	54830238	54830238	54830238	55150234			
3L#02	LCS 01		0.635 101.6	95.7%	81.3%	N/A	1		
			54830238	54830238	54830238	55150234	1		
CB-1260 CLBP	PCB-1260 Decachlorobiphe	enyl (Sui	rrogate (40-14	0 WS))	TolXYL-S 2,4,	,5,6-Tetrachloro-r CENT MOISTURE	n-xylene(S	urrogate(40-14	0 WS
					•				

INTERNAL QC DATA

Jobfile Number: Project: Account Number: 90808

GREEN BAY - OLIN-ESTES 0054PD-92310183

Date Received: 17 AUG 00

Job#	Sample	Tst	Analyte	% REC	% SDUPL	RPD	OID
90808	90808	137	PCB-1016	134.8	154.4	13.6	54830238
90808	90808	143	PCB-1260	89.6	97.2	8.1	54830238
90808	90808	145	TclXYL-S	81.6	87.2	6.6	54830238
90808	90808	146	DCLBP	65.8	78.1	17.1	54830238

Page 1

END OF REPORT

DATE: 23 OCT (JOB FILE: 90823 JOB NUMBER: 0054PD-92310183 RECEIPT DATE: 17 AUG (JOS DESCRIPTION: GREEN BAY - OLIN-ESTES COMPLETION DATE: 23 OCT (TYPE OF SAMPLE: SEDIMENT CHEM. PRESERVATIVE: 4 2 COLUMN..... 1 8 7 ANALYTE..... 2 HG РВ CU co MG/KG..... AS RC DESCRIPTION SAMP # <0.040 2.60 2.80 3.10 0.030 CONC 0.600 GREEN BAY 90823 96.0 100.0 105.6 96.2 104.2 1400-1 8/10/00 XREC 91.4 <0.040 2.60 3.10 2.80 0.030 DUPL 0.600 04650252 UNDERFLOW 01260269 01260269 01260269 01260269 01260269 OID HGA AUTH HGA AUTH HGA AUTH HGA AUTH <0.040 1 2.50 2.70 2.90 CONC 0.499 1 0.300 90824 GREEN BAY 1400-2 8/10/00 XREC DUPL UNDERFLOW 04650252 01260269 01260269 01260269 01260269 01260269 DID HGA AUTH **HGA AUTH** HGA AUTH HGA AUTH 2,19 1 <0.040 6.38 0.030 2.09 CONC 0.468 GREEN BAY 90825 1501-1 8/10/00 %REC UNDERFLOW DUPL 01230286 04650252 01230286 04360292 01230286 CID 04360291 HGA AUTH HGA AUTH HGA AUTH HGA AUTH <0.040 2.10 2.50 1.30 0.020 CONC 0.400 90826 GREEN BAY 1505-2 8/10/00 XREC DUPL UNDERFLOW 04650252 01230286 01230286 01260269 01260269 01260269 OID HGA AUTH HGA AUTH HGA AUTH HGA AUTH <0.040 2.99 1 6.49 0.0399 3.49 CONC 0.499 GREEN BAY 90827 ZREC 1525-1 8/10/00 UNDERFLOW DUPL 01260269 01230286 04650252 01260269 01230286 01260269 OID HGA AUTH HGA AUTH HGA AUTH **HGA AUTH** <0.040 2.70 0.0299 3.49 3.99 CONC 0.499 90828 GREEN BAY %REC 1525-2 8/10/00 DUPL UNDERFLOW 04650252 01230286 01260269 01260269 01230286 01260269 OID HGA AUTH HGA AUTH HGA AUTH HGA AUTH CD Cadmium AS Arsenic Copper CU CR Chromium HG Mercury Lead PB

	ESCRIPTION: GREE	N BAY	- OLIN-ESTES			NUMBER: 0054PD-		RECEIPT DATE:	
CHEM. PR	ESERVATIVE:								
	COLUMN		1	2	3	4	5 7	6 8	
	ANALYTE		2	4	5	.6 CU	PB	.o Hg	
	MG/KG	****	AS	CD	CR	CO	PB	nu	
SAMP #	DESCRIPTION								\$
90829	GREEN BAY	CONC	0.399	0.020	2.30	1.20	2.10	<0.040	4.
	1625-1 8/10/00	XREC		i	1.	ĺ	1		- 1
	UNDERFLOW	DUPL		i	, i	İ	4	d ·	1
		OID	01260269	01260269	01230286	01260269	01230286	04650252	1
				HGA 'AUTR	HGA AUTH	HGA AUTH	HGA AUTH		
90830	GREEN BAY	CONC	0.580	0.050	3.40	2.10	3.00	<0.040	ſ
,	1625-2 8/10/00	XREC	* •	į.	i	· İ.	1	1	1
	UNDERFLOW	DUPL		i	ì	l l	J.	1	1
		OID	04360291	04360262	01230286	01260269	01230286	04650252	1
				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTR		
90831	GREEN BAY	CONC	0.529	0.033	3.39	2.20	5.09	<0.040	ŀ
	1715-1 8/10/00	XREC	109.3	104.5	100.6	97.6	100.0	98.0	. 1
	UNDERFLOW	DUPL	0.569	0.034	3.39	1.60	4.59	<0.040	- 1
		OID	04360291	04360262	01230286	01260269	01230286	04650252	ı
				HGA AUTH	HGA AUTH	HGA, AUTH	HGA AUTH		
90832	GREEN BAY	CONC	0.410	0.038	2.30	1 4.70	1 4.10	1 <0.040	- 1
70032	1715-2 8/10/00	ZREC	0.410	1 0.000	1	i	i	i	i
	UNDERFLOW	DUPL		i	- i	i		ĺ	i
	ONUERFLOR	010	04360291	04360262	01230286	01260269	01230286	04650252	į.
		0.0	04350271	HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH	• "	·
90833	GREEN BAY FEED	CONC	4.55	1 0.820	1 58.6	61.3	57.0	1 1.27	1
,,,,,	1400-1 8/10/00	%REC	*****	i ·	i	Ĩ		1 .	- 1
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	DUPL		i	i.	j		1	ļ
		OID	04360291	04360262	01230286	01260269	01230286	04650252	t
				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
90834	GREEN BAY FEED	CONC	3.99	0.733	52.2	51.2	53.5	1.35	1
	1505-1 8/10/00	XREC		1	1	1			-
		DUPL	0/7/0304	1 0/7/07/7	01230286	01260269	01230286	04650252	
		010	04360291	04360262 HGA AUTH	HGA AUTX	HGA AUTH	HGA AUTH	1 24030636	1

*****	E: 90823	***** [ENVIRONMENTAL C	HEMISTRY BRANC	H - DATA REPORT	ING SHEET (PAGE	3 OF 9)**		23 OCT
	DESCRIPTION: GREE RESERVATIVE:	ЕН ВАҮ	- OLIN-ESTES			NUMBER: 0054PD-97 SAMPLE: SEDIMENT		RECEIPT DATE:	
	COLUMN		1	5	3	4	5	6	
	ANALYTE			4 CD	5 CR	6 CU	7 P8	8 HG	
	nu/ku, , , ,		N3	CO	GR,	Cu	F 0	no.	
SAMP #	DESCRIPTION								F
90835	GREEN BAY FEED 1525-1 8/10/00	CONC XREC DUPL	1.42	0.250 	15.2 	[15.9 	16.6	0.378	
		010	04360291	04360262 HGA AUTH	D1230286 HGA AUTH	01260269 HGA AUTH	01230286 HGA AUTH	04650252	i
90836	GREEN BAY FEED 1625-1 8/10/00	CONC %REC DUPL	2.93	0.640 [°] 	45.5 	39.8 	45.1 	0.900 	
		OID	04360291	04360262 HGA AUTH	01230286 HGA AUTH	01260269 HGA AUTH	01230286 HGA AUTH	04650252	ì
90837	GREEN BAY FEED 1715-1 8/10/00	CONC %REC DUPL	1.98	0.380 	26.3 	25.5	25.6 	0.470	1
		OID	04360291	04360262 HGA AUTH	01230286 HGA AUTH	01260269 HGA AUTH	01230286 HGA AUTH	04650252	i
BL#01	METHOD BLANK 01	CONC %REC DUPL	<0.200	<0.020 	<0.100 	0.100	0.106 	<0.040	
		OID	04360291	01260269 HGA AUTH	01230286 HGA AUTH	01260269 HGA AUTH	01230286 HGA AUTH	04650252	İ
BL#02	LCS 01	CONC %REC DUPL		4.99 99.8 	22.4 112.0	21.8 109.0 	11.5 115.0 	0.072 96.0	
		010	04360291	01260269 HGA AUTH	01230286 HGA AUTH	01260269 HGA AUTH	01230286 HGA AUTH	04650252	İ
BL#03	EXTERNAL QC 01	CONC XREC DUPL	79.1	36.8	16.6	112 	119 	0.054 90.0	
		OID	04360291	01260269 HGA AUTH	01230286 HGA AUTH	01260269 HGA AUTH	01230286 HGA AUTH	04650252	İ
AS	Arsenic					admium			
CR P8	Chromium Lead					opper ercury			
						•			

DATE: 23 OCT (

	DESCRIPTION: GREE RESERVATIVE:	N BAY	- OLIN-ESTES		JOB)	UMBER: 0054PD-9 CAMPLE: SEDIMENT		RECEIPT DATE: COMPLETION DATE:	
	COLUMN		7	8	9	10:	11	12	
	ANALYTE			10	-1.1	13	25	30	
	MG/KG		NI	\$E	AG	ZN	BA	F.E.	
SAMP #	DESCRIPTION								. R
90823	GREEN BAY	CONC	2.40	<0.200	0.100	5.50	9.29	1830	Ì
	1400-1 8/10/00	%REC	101.0	84.0	100.0	84.4	96.2	0.08	1
	UNDERFLOW	DUPL	2.40	<0.200	0.100	5.50	9.49	1820	J
		OID	01260269	01260269	01260269	01260269	01260269	01260269	1
			HGA AUTH	<i>.</i> .	HTUA AUTH				
90824	GREEN BAY	CONC	2.40	0.200	0.300	5.09	4.99	1730	i
,,,,,	1400-2 8/10/00	%REC			i	Î	1	1	.]
	UNDERFLOW	DUPL		İ	ĺ	İ			1
		OID	01260269	01260269	01260269	01260269	01260269	01260269	- 1
			HGA AUTH	•	HGA AUTH				
90825	GREEN BAY	CONC	3.09	<0.200	<0.100	5.08	3.19	1540	1
	1501-1 8/10/00	XREC		į.	Ţ.	4	.1	1	Ţ
	UNDERFLOW	DUPL		j ·	4.	- I	.1		!
		DID	01230286	04360291	04360297	01230286	01230286	01230286	1.
			NGA AUTH		HGA AUTH				
90826	GREEN BAY	CONC	2.00	<0.200	0.100	4.59	3.70	1400	1
	1505-2 8/10/00	%REC		į.	1	4	.]	ļ.	Ļ
	UNDERFLOW	DUPL		Ĺ	1	.1	1		!
		OID	01230286	01260269	01260269	01230286	01230286	01230286	ı
			HGA AUTH	*	HGA AUTH		•		
90827	GREEN BAY	CONC	2.40	<0.200	0.100	5.69	5.09	2070	1
	1525-1 8/10/00	XREC		ĺ	1	1	I		ļ
	UNDERFLOW	DUPL		1	l l			ľ	Į.
		DID	01230286	01260269	01260269	01230286	01230286	01230286	
			HGA AUTH		HGA AUTH			•	
90828	GREEN BAY	CONC	2.30	<0.200	0.100	5.99	5.99	1910	1
	1525-2 8/10/00	%REC			1	I .	l		ļ
	UNDERFLOW	DUPL		1	1		†		ļ
		DID	01230286	01260269	01260269	01230286	0123028	5 01230286	ł
			HGA AUTH		HGA AUTH				
NI	Nickel					Selenium		·	
AG	Silver					inc			
BA	Barium.			•	FE	l ròn:			

DATE: 23 OCT (JOB FILE: 90823 JOB NUMBER: 0054P0-92310183 RECEIPT DATE: 17 AUG (JOB DESCRIPTION: GREEN BAY - OLIN-ESTES COMPLETION DATE: 14 SEP (TYPE OF SAMPLE: SEDIMENT CHEM. PRESERVATIVE: 12 11 10 COLUMN..... 7 25 30 13 11 ANALYTE..... 9 10 FE BA MG/KG..... NI ZN SAMP # DESCRIPTION 1400 4.79 1 3.69 CONC 1.80 <0.200 0.100 GREEN BAY 90829 1625-1 8/10/00 %REC DUPL UNDERFLOW 01230286 01230286 01230286 01260269 010 01230286 01260269 HGA AUTH HGA AUTH | 2510 | 5.59 <0.200 <0.100 1 6.79 CONC 3.10 90830 GREEN BAY 1625-2 8/10/00 **XREC** UNDERFLOW DUPL 01230286 01260269 04360297 01230286 01230286 010 01230286 HGA AUTH HGA AUTH 5.19 2580 5.99 I <0.100 <0.200 90831 GREEN BAY CONC 3.49 93.0 101.2 %REC 99.2 93.B 102.0 93.4 1715-1 8/10/00 <0.100 5.89 5-09 2530 <0.200 UNDERFLOW DUPL 3.29 01230286 01230286 01230286 04360297 04360291 OID 01230286 HGA AUTH HGA AUTH 1820 4.80 1 3.80 CONC 2.80 <0.200 1 <0.100 GREEN BAY 90832 1715-2 8/10/00 *RFC UNDERFLOW DUPL 01230286 01230286 010 01230286 04360291 04360297 01230286 HGA AUTH HGA AUTH 120 95.7 1.20600 0.799 CONC 23.7 90833 GREEN BAY FEED 1400-1 8/10/00 XREC DUPL 01230286 01230286 01230286 04360291 04360297 oto 01230286 HGA AUTH HGA AUTH 18600 82.1 101 0.410 GREEN BAY FEED CONC 22.5 0.799 90834 1505-1 8/10/00 %REC DUPL 01230286 01230286 OID 01230286 04360291 04360297 01230286 HGA AUTH HGA AUTH Selenium SE NI Nickel ZN Zinc Silver AG Iron FE Bacium

JÓB	Fil	F:	90823

					•				
			4		e san i	HIMRED. OF	54PD-92310183	RECEIPT DATE:	17 AC
	ESCRIPTION: GREEN	BAY -	OLIN-ESTES		TYPE OF		TRAMIC	COMPLETION DATE:	
	COLUMN		7	8	* 9	10	11	12	
	ANALYTE		9	10	11.	13	25	30	
	MG/KG			SE	AG	ZN	BA	FE	
SAMP #	DESCRIPTION			,					
annr #	DESCRIPTION			***	i a san	أف معا	24.0	6100	1
90835	GREEN BAY FEED 1525-1 8/10/00	CONC	9.18] 0.240]	0.120 	30.2	24,0	1	
		DUPL	04070394	l 04360291	04360293	0123	0123028	6 01230286	i
		OID	D1230286 HGA AUTH	1.04300634	HGA AUTH	4	- 1	or a second	
90836	GREEN BAY FEED	CONC	15.8	0.540	0.370	85.3	65.9	14400	1
70030	1625-1 8/10/00	XREC			į · · · ·		· : ·		1
		OID	D1230286	04360291	04360293	0123	0286 0123028	6 01230286	ĺ
			HGA AUTH	-	HGA AUTH				٠
90837	GREEN BAY FEED	CONC	11.0	0.340	0.200	51.4	40.5	9810	ĺ
	1715-1 8/10/00	XREC		1			i	F	
		OID	01230286	04360291	04360293	0123	0286 0123028	6 01230286	1
•		210	HGA AUTH		HGA AUTH	•			
BL#01	METHOD BLANK 01	CONC	0.100	<0.200	<0.100	<1.0	0.100	2.40	.
		ZREC				1	1	Ì	ľ
		DUPL OTB	01230286	01260269	01260269	0123	0286 012302	86 01230286	i
		OLD	HGA AUTH	,	HGA AUTH	• .	-		
BL#02	ĽĆŠ Öİ	CONC	21.9	4.10	[4.60	[43.7	50.6	101	- [
DEWUZ	203 01	XREC	109.5	82.0	92.4	87.4	101.2	101.0	ļ
		DUPL		1 043/03/0	01240240	1 0123	. 012302	86 01230286	¦
		OID	01230286 HGA AUTH	01260269	01260269 HGA AUTH	1 012.	Janeson I average	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
BL#03	EXTERNAL QC 01	CONC	15.9	1.40	(3.90	281	185	20300	ı
9E#43	FUI FUUNE 40 0)	XREC		i	Ì	İ	4	<u> </u>	1
		DUPL		ĺ	1	1			` !
		OID	01230286	01260269	01260269	012	30286 012302	86 01230286	
			HGA AUTH		HGA AUTH				
Nt	Nickel				ŚE	Selenium		•	
AG	Silver				ZN	Zinc			
BA.	Barium				FE	Iron			

```
DATE: 23 OCT (
JOB FILE: 90823
RECEIPT DATE: 17 AUG (
                                                       JOB NUMBER: 0054PD-92310183
  JOB DESCRIPTION: GREEN BAY - DLIN-ESTES
                                                                                    COMPLETION DATE: 14 SEP (
                                                    TYPE OF SAMPLE: SEDIMENT
CHEM. PRESERVATIVE:
            COLUMN...... 13
                                      14
            ANALYTE..... 32
                                      33
                                      MO
            MG/KG..... MN
SAMP # DESCRIPTION
                                     0.100
       GREEN BAY
                     CONC 48.8
90823
                                     102.2
       1400-1 8/10/00 %REC 99.0
                                     0.100
                     DUPL 48.3
       UNDERFLOW
                     010 01260269
                                     01260269
                          HGA AUTH
                                     1 0.100
                     CONC 60.5
       GREEN BAY
90824
        1400-2 8/10/00
                     TREC
        UNDERFLOW
                     DUPL
                                     01260269
                     OID 01260269
                          HGA AUTH
                     CONC 34.9
                                      <1.00
 90825
        GREEN BAY
        1501-1 8/10/00
                     DUPL
        UNDERFLOW
                     010 01230286
                                      01260269
                          HGA AUTH
                                      <1.00
        GREEN BAY
                     CONC 44.9
 90826
        1505-2 8/10/00
                     %REC
        UNDER FLOW
                     DUPL
                                      01260269
                     OID 01230286
                          HGA AUTH
                                      0.100
                      CONC 56.6
        GREEN BAY
 90827
        1525-1 8/10/00
                     XREC
                      DUPL
        UNDERFLOW
                      DID 01230286
                                      01260269
                           HGA AUTH
                                      0.100
                      CONC 48.5
        GREEN BAY
 90828
                      %REC
        1525-2 8/10/00
                      DUPL
        UNDERFLOW
                      OID 01230286
                                       01260269
                           HGA AUTH
                                                            Molybdenum
                                                    HC
         Manganese
```

DATE: 23 OCT (E JOB FILE: 90823 RECEIPT DATE: 17 AUG I JOB NUMBER: 0054PD-92310183 JOB DESCRIPTION: GREEN BAY - OLIN-ESTES COMPLETION DATE: 14 SEP (TYPE OF SAMPLE: SEDIMENT CHEM. PRESERVATIVE: 14 COLUMN...... 13 33 ANALYTE..... 32 КО MG/KG..... MN SAMP # DESCRIPTION GREEN BAY FEED CONC 137 | <1.00 90835 1525-1 8/10/00 XREC DUPL 01260269 OID 01230286 HGA AUTH (1.00 GREEN BAY FEED CONC 257 90836 1625-1 8/10/00 XREC DUPL OID 01230286 01260269 1 <1.00 90837 GREEN BAY FEED CONC 180 1715-1 8/10/00 XREC DUPL OID 01230286 01260269 HGA AUTH METHOD BLANK 01 CONC <0.100 <1.00 BL#01 XREC DUPL OID 01230286 01260269 HGA AUTH CONC 22.8 N/A LCS 01 ZREC 114.0 DUPL 010 01230286 01260269 HGA AUTH 0.400 BL#03 EXTERNAL QC 01 CONC 539 %REC DUPL OTD 01230286 01260269 HGA AUTH Molybdenum Manganese

DATE: 30 AUG (

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES					JOB NUMBER: 0054PD-92310183		RECEIPT DATE: 17 AUG	
HEM. PK	ESEKVALIVES				TIPE UF SA	MALTEI PEDIMENI	COMPLETION DATE	: 30 AUG
	COLUMN		1	2.	3	4		
	ANALYTE		86	95	100	104		•
	MG/KG	*****	100	TVS	0&G	TRPH		
AMP.#	DESCRIPTION						5 .	1
0838	GREEN BAY	CONC	1130	<4	<38.0	<38.0		
	1400-1 8/10/00	XREC		1	88.5	91.9		
	UNDERFLOW	DUPL	1350	Ì	1			
		OID	60040240	10150235	55990239	55990242		
90839	GREEN BAY	CONC	391	<4	16.0 J	<43		
	1400-2 8/10/00	%REC	·		1			
	UNDERFLOW	DUPL		1	i.			
		OID	60040240	10150235	55990239	55990242		
90840	GREEN BAY	CONC	412	<4] <44.0	<44.0		
	1505-1 8/10/00	%REC		ı	1			
	UNDERFLOW	DUPL		ļ				
		DID	60040240	10150235	55990239	55990242		
	Continue maked		***	. 11.5	Linux and	Lives 1		
90841	GREEN BAY	CONC	682	<4	<41.0	<41.0		
	1505-2 8/10/00	XREC		!	!			
	UNDERFLOW	DUPL	(00100/0	1 40450075	l crossara			
		OID	60040240	10150235	55990239	55990242	•	
0842	GREEN BAY	CONC	530	1 <4	21.0 J	<43		
0042	1525-1 8/10/00	XREC	230	1	1 51.00	177		
	UNDERFLOW	DUPL						
	UNDERFLUM	GID	60040240	10150235	55990239	55990242		
		ĢID	00010210	1 10130003	1 3377,0237	1 25772212		
90843	GREEN BAY	CONC	1620	i <4	13.0 J	<43		-
	1525-2 8/10/00	XREC		ì		i		
	UNDERFLOW	DUPL		i	i			
		OID	60040240	10150235	55990239	55990242	10 m	•
oc	Total Organic Carbon				TVS Tot	Total Volatile Solids		
žG.	Oil and Grease				TRPH Tot	TRPH Total Recoverable Petroleum Hydrocarbons		

DATE: 30 AUG C JOB FILE: 90838 JOB DESCRIPTION: GREEN BAY - OLIN-ESTES JOB NUMBER: 0054PD-92310183 RECEIPT DATE: 17 AUG (COMPLETION DATE: 30 AUG C CHEM. PRESERVATIVE: TYPE OF SAMPLE: SEDIMENT COLUMN...... 1 2 3 100 104 95 ANALYTE..... 86 MG/KG..... TOC TVS 086 TRPH DESCRIPTION RC <44 <4 23.0 1 GREEN BAY CONC 765 1625-1 8/10/00 XREC UNDERFLOW GID 60040240 10150235 55990239 55990242 <43 GREEN BAY CONC 2570 | <4 I 10.0 J 1625-2 8/10/00 %REC UNDERFLOW DUPL 55990242 GID 60040240 10150235 55990239 10.0 J GREEN BAY CONC 850 1 44 90846 1715-1 8/10/00 XREC UNDERFLOW DUPL 55990239 55990242 OID 60040240 10150235 1 <42 90847 GREEN BAY CONC 1240 1 44 <42.0 1715-2 8/10/00 ZREC UNDERFLOW DUPL 10150235 55990239 55990242 010 60040240 200 160 GREEN BAY FEED CONC 28900 <4 90848 1400-1 8/10/00 **XREC** 010 60040240 10150235 55990239 55990242 1 460 370 GREEN BAY FEED CONC 35800 1 <4 90849 1505-1 8/10/00 XREC DUPL 55990242 OID 60040240 10150235 55990239 TVS Total Volatile Solids TOC Total Organic Carbon Total Recoverable Petroleum Hydrocarbons TRPH Oil and Grease

JOB FILE: 90838 DATE: 30 AUG (JOB DESCRIPTION: GREEN BAY - CLIN-ESTES JOB NUMBER: 0054PD-92310183 RECEIPT DATE: 17 AUG (CHEM. PRESERVATIVE: TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 30 AUG [COLUMN..... 1 95 TVS. ANALYTE..... 86 100 104 MG/KG..... TOC SAMP # DESCRIPTION Rί 90850 GREEN BAY FEED CONC 21300 270 1525-1 8/10/00 XREC DUPL 60040240 10150235 55990239 DID 55990242 GREEN BAY FEED CONC 30400 <4 90851 1 280 1 230 1625-1. 8/10/00 XREC DUPL 010 60040240 10150235 55990239 55990242 90852 GREEN BAY FEED CONC 14400 370 1715-1 8/10/00 %REC | <4 DUPL 1 10150235 OID 60040240 55990239 55990242 BL#01 METHOD BLANK 01 CONC <100 1 <4 | <35 1 <35 ZREC DUPL 10150235 55990239 55990242 010 60040240 CONC 10300 902 BL#02 LCS 01 868 XREC 103.0 87.1 90.5 DUPL GID 60040240 10150235 55990239 EXTERNAL OC 01 CONC 20500 N/A N/A I N/A %REC 91.1 DUPL 010 60040240 10150235 55990242 55990239 TOC Total Organic Carbon TVS Total Volatile Solids Total Recoverable Petroleum Hydrocarbons TRPH

Jobfile Number: 90838
Project: GREEN BAY - OLIN-ESTES
Account Number: 0054PD-92310183
Date Received: 17 AUG 00

	-		Analyte		% SDUPL	RPD	OID
90838	90838	100		88.5 91.9	87.4 91.0	1.3	55990239 55990242

Page 1

JOP. FILE: 190853 DATE: 26 SE JOB DESCRIPTION: GREEN BAY - OLIN-ESTES JOB NUMBER: 0054PD-92310183 RECEIPT DATE: 17 AU CHEM. PRESERVATIVE: TYPE OF SAMPLE: WATER COMPLETION DATE: 26 SE COLUMN......1 3 6 ANALYTE..... 137 138 139 140 141 142 PPB..... PCB-1016 PCB-1221 PCB-1232 PCB-1242 PCB-1248 PC8-1254 SAMP # DESCRIPTION 90853 GREEN BAY CONC <0.27 | <0.27 1 < 0.27 0,27 <0.27 <0.27 1400-1 8/10/00 "XREC 118.8 OVERFLOW DUPL ara 54830238 54830238 54830238 54830238 54830238 54830238 90854 GREEN BAY CONC <0.24 | <0.24 <0.24 0.28 <0.24 <0.24 1505-1 8/10/00 **XREC** DVERFLOW DUPL OID 54830238 54830238 54830238 54830238 54830238 54830238 90855 GREEN BAY CONC <0.25 <0.25 <0.25 0.25 J <0.25 I <0.25. 1525 8/10/00 ZREC. OVERFLOW DUPL OID 54830238 54830238 54830238 54830238 54830238 54830238 ¥0856 GREEN BAY CONC <0.24 <0.24 <0.24 0.18 1 <0.24 <0.24 1625-1 8/10/00 XREC OVERFLOW DUPL DID 54830238 54830238 54830238 54830238 54830238 54830238 GREEN BAY CONC <0.25 <0.25 <0.25 I 0.22 J <0.25 <0.25 1715-1 8/10/00 **ZREC** OVERFLOW DUP OID 54830238 54830238 54830238 1 54830238 54830238 54830238 90858 GREEN BAY FEED CONC <0.24 <0.24 <0.24 0.29 <0.24 1 <0.24 1400-1 8/10/00 ZREC DUPL 010 54830238 54830238 54830238 54830238 54830238 Í 54830238 PCB-1016 PCB-1016 PCB-1221 PCB-1221 PCB-1232 PCB-1232 PCB-1242 PCB-1242 PCB-1248 PCB-1248

PCB-1254 PCB-1254

* ****	*************	*****	* ENVIRONMENTAL	. CHEMISTRY BRA	NCH - DATA REPORT	ING SHEET (PAG	E 2 DF 4 2	DATE:	26 s
JOE CHEM.	DESCRIPTION: GR PRESERVATIVE:	IEEN BA	Y - OLIN-ESTES	:	JOS TYPE OF	NUMBER: 0054PD- SAMPLE: WATER		RECEIPT DATE:	17 A
				2 138 PCB-1221	3 139 PC9-1232	4 140 PCB-1242	5 141 PCB-1248	6 142 PCB-1254	
SAMP #	DESCRIPT!ON								
90859	GREEN BAY FEED 1505-1 8/10/00	ZREI DUPI		<0.23 	<0.23	0.27	<0.23 	<0.23	1
		010	54830238	54830238	54830238	54830238	54830238	 54830238	į
90860	GREEN BAY FEED 1525-1 8/10/00	CONC XREC		<0.20 	<0.20 	0.27	(<0.20	<0.20	1
		010	54830238	54830238	5483023 8	54830238	 54830238	54830238	İ
90861	GREEN BAY FEED 1625-1 8/10/00	CONC XREC DUPL	<0.24	<0.24 	<0.24	0.36	<0.24	<0.24 	ļ
		010	54830238	54830238	54830238	 54830238	 54830238	54830238	į
90862	GREEN BAY FEED 1715-1 8/10/00	CONC %REC DUPL	<0.24	<0.24 	<0.24	0.41	<0.24	<0.24 	!
		010	54830238	54830238	54830238	54830238	54830238	54830238	1
BL#01	METHOD BLANK 01	CONC %REC DUPL	<0.25	<0.25 	<0.25 	<0.25 	<0.25	<0.25 	İ
		010	54830238	54830238	54830238	54830238	54830238	54830238	1
BL#02	LCS 01	CONC %REC DUPL		N/A 	H/A	H/A 	N/A	N/A	!
			54830238	54830238	54830238	54830238	54830238	54830238	İ
PCB-1016 PCB-1232 PCB-1248	PC8-1016 PC8-1232 PCB-1248				PCB-1221 PCB-1242 PCB	1242			
					PCB-1254 PCB-				

			,	: 			:			
JOB CHEM. P	DESCRIPTION: GRE RESERVATIVE:	YAS KE	- OLIN-ESTES	í.	JOB TYPE OF	NUMBER: SAMPLE:	0054PD-92310183 WATER	RECETA COMPLETIO	PT DATE:	17 A
	COLUMN		7	8	9			1.81		
	ANALYTE.		143 PCB-1260	145 TCLXYL-S	146 DCLBP			A		
SAMP #	DESCRIPTION							¥		
90853	GREEN BAY	CONC	<0.27	1 60.0%	1 66.9%					
	1400-1 8/10/00 OVERFLOW	XREC DUPL	88.8	65.6	65.4					
		010	54830238	54830238	54830238	ľ				
0854	GREEN BAY 1505-1 8/10/00 OVERFLOW	CONC ZREC DUPL	<0.24	63.7% -	66.9%	Į.	·			
		010	54830238	54830238	54830238	ĺ		-		
0855	GREEN BAY 1525 8/10/00 OVERFLOW	CONC %REC DUPL	<0.25	62.8%	66.7%					
		010	54830238	54830238	54830238	.				
0856	GREEN BAY 1625-1 8/10/00	CONC	<0.24	70.4%	1 70.0x					
	OVERFLOW	DUPL	54830238	54830238	54830238					
					* **					
857	9715-1 8/10/00 0VERFLOW	ZREC DUPL	<0.25	65.8% 	68.8% 	l li				
		OID.	54830238	54830238	54830238	i				
858	GREEN BAY FEED 1400-1 8/10/00	CONC %REC DUPL	<0.24	62.4%	69.6%].				ار به د
			54830238	54830238	54830238		•			

ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 4 OF 4) JOB DESCRIPTION: GREEN BAY - OLIN-ESTES CHEM. PRESERVATIVE: COLUMN	JOH FOL	*L5: 90853					DATE:	24.5
CHEM. PRESERVATIVE: Type of sample: Mater Completion Date: 2	****	****	****** ENVIRONMENTAL	CHEMISTRY BRAN	H - DATA REPORTING S	HEET (PAGE 4 OF		****
### COLUMN	CHEM.	B DESCRIPTION: GR PRESERVATIVE:	REEN BAY - OLIN-ESTES		JOB NUMBER TYPE OF SAMPLE	R: 0054PD-92310183	RECEIPT DATE:	17 A
90859 GREEN BAY FEED CONC <0.23 66.9% 67.3% 27.2% 60.5% 67.3% 27.2% 66.9% 67.3% 27.2% 67.3% 27.2% 67.		COLUMN ANALYTE.	143	145	146		4	60 3
1505-1 8/10/00	SAMP #	DESCRIPTION						
1525-1 8/10/00 XREC DUPL OID 54830238 5483	9 0859	GREEN BAY FEED 1505-1 8/10/00	%REC DUPL	İ	i			
1625-1 8/10/00 XREC DUPL OID 54830238 5483	90860		XREC DUPL	İ			_	
1715-1 8/10/00	90861		XREC DUPL	j I				
BL#01 METHOD BLANK 01 CONC <0.25 60.5% 62.0%	90862		%REC DUPL					
OID 54830238 \$4830278 \$4020270	BL#01	METHOD BLANK 01	#REC	60.5% 54830238	62.0%			
BL#02 LCS 01 CONC 0.22 70.3% 67.8% 7.8%	BL#02	LCS 0†	CONC 0.22	•	•			•
DUPL 01D 54830238 54830238 54830238			DUPL	54830238	54830238			
PCB-1260 PCB-1260 DCLBP Decachlorobiphenyl(Surrogate (40-140 WS)) TclXYL-S 2,4,5,6-Tetrachloro-m-xylene(Surrogate(40-140 WS))			nyl(Surrogate (40-140) WS))	TCLXYL-S 2,4,5,6-1	etrachloro-m-xylene(S	urrogate(40-140 WS	

Jobfile Number: 90853
Project: GREEN BAY - OLIN-ESTES
Account Number: 0054PD-92310183
Date Received: 17 AUG 00

Job#	Sample	Tst	Analyte	% REC	% SDUPL	RPD	OID
90853 90853 90853	90853 90853 90853	137 143 145	PCB-1016 PCB-1260 TclXYL-S	118.8 88.8	129.2 112.0 65.5 64.7	8.4 23.1 0.2 1.1	54830238 54830238 54830238 54830238

Page 1

Job Description	on: GREEN BAY - OLIN-ESTES	Jo	b File Number: 90853
	ECB Quality Assur	ance Corrective Action	on Form
	i).		:
Analysis: Analyst:	PCB A. MORROW		26-September-00
Problem:	Instrument integrated incorrect	y because of low responses or	concentrations.
			÷
Sample Nu	imber(s) Affected: 90853-	90862	,
Recommen	nded Corrective Action: Re-inte	grate manually	

Corrective .	Action Taken By Analyst: Same a	as above.	
Comments	: Re-integrated manually and re	ported values. If there are ques	itions, please call.
Date Corre	ective Action Taken: 26-Se	intember-00	
Reviewed I	i\	Millan	
ļ			

1/1	χ^{o} .		CUATRONIENINE	PHEMISIKI DKHAC	HDATA KEPOK(II	NG SHEET (PAGE	1 0F 4 > ******	*******
	DESCRIPTION: GRE RESERVATIVE:	EN BAY	- OLIN-ESTES			IUMBER: 0054PD-92	5 '	RECEIPT DATE: 2
	COLUMN AMALYTE PPB		1 137 PCB-1016	2 138 PCB-1221	3 139 PCB-1232	4 140 PCB-1242	5 141 PCB-1248	6 142 PCB-1254
SAMP #	DESCRIPTION							
90883	GREEN BAY 1400-2 8/10/00 OVERFLOW	CONC XREC DUPL		<0.25	√ <0.25 	[0.13 J	<0.25 	<0.25
		OID	54830255	54830255	54830255	54830255	54830255	54830255
90884	GREEN BAY 1505-2 8/10/00 OVERFLOW	CONC %REC DUPL	<0.24	{ <0.24 	<0.24 	1 0.12 J	<0.24	<0.24
		OID	54830255	54830255	54830255	54830255	54830255 -	54830255
90885	GREEN BAY 1525-2 8/10/00 OVERLEON	CONC XREC DUPL	<0.25 88.4	<0.25	<0.25	0.15 y	<0.25 	<0.25
		010	54830255	54830255	54830255	54830255	54830255	54830255
90886	GREEN BAY 1625-2 8/10/00 OVERFLOW	CORC XREC DUPL	<0.25	<0.25	<0.25	0.21 4	<0.25] <0.25
		OID	54830255	54830255	54830255	54830255	54830255	 54830255
	GREEN BAY 1715-2 8/10/00 OVERFLOW	CONC XREC DUPL	<0.26	<0.26 	<0.26	0.24 J	<0.26	<0.26
		ain	54830255	54830255	54830255	54830255	 54830255	 548 3 0255
	GREEN BAY FEED 1400-2 8/10/00	CONC %REC DUPL	<0.23	<0.23	<0.23	[0.13] J	<0.23 	<0.23
			54830255	54830255	54830255	54830255	54830255	54830255
CB-1232	PCB-1016 PCB-1232 PCB-1248				PCB-1221 PCB- PCB-1242 PCB- PCB-1254 PCB-	-1242		

CB9 + HL1 Y 90283 DATE: 26 SE JOB DESCRIPTION: GREEN BAY - OLIN-ESTES JOB NUMBER: 0054PD-92310183 RECEIPT DATE: 21 AUG CHEM. PRESERVATIVE: TYPE OF SAMPLE: WATER COMPLETION DATE: 26 SEP COLUMN..... 7 ANALYTE..... 143 146 PPB..... PCB-1260 TOLXYL-S DCLBP SAMP # DESCRIPTION 90883 GREEN RAY CONC <0.25 59.8% 67.2% 1400-2 8/10/00 ZREC OVERFLOW DUPL OID 54830255 54830255 54830255 90884 GREEN BAY CONC <0.24 45.6% 64.1% 1505-2 8/10/00 XREC OVERFLOW. DUPL OID 54830255 54830255 54830255 90885 GREEN BAY CONC <0.25 54.3% 66.6% 1525-2 8/10/00 XREC 78.8 61.9 74.9 OVERLIFOW. DUPL OID 54830255 54830255 54830255 GREEN BAY 90886 CONC <0.25 1 56.8% 63.6% 1625-2 8/10/00 %REC OVERFLOW DUPL OID 54830255 54830255 54830255 90887 GREEN BAY CONC <0.26 53.2% 61.2% 1715-2 8/10/00 %REC OVERFLOW DUPL 010 54830255 54830255 54830255 90888 GREEN BAY FEED CONC <0.23 56.8% 1 10 67.4% 1400-2 8/10/00 %REC DUPL 010 54830255 54830255 54830255 PCB-1260 PCB-1260 TCLXYL-S 2,4,5,6-Tetrachloro-m-xylenc(Surrogate(60-150 WS DCLBP Decachlorobiphenyl(Surrogate (40-140 WS))

J03 /115: 90883 DATE: 26 SEF JOB DESCRIPTION: GREEN BAY - OLIN-ESTES JOB NUMBER: 0054PD-92310183 RECEIPT DATE: 21 AUG CHEM. PRESERVATIVE: TYPE OF SAMPLE: WATER COMPLETION DATE: 26 SEP COLUMN...... 7 ANALYTE..... 143 145 146 PPB..... PCB-1268 TclXYL-S SAMP # DESCRIPTION 90889 GREEN BAY FEED CONC <0.24 1 29.8% 58.5% 1505-2 8/10/00 XREC DUPL OID 54830255 54830255 54830255 90890 GREEN BAY FEED CONC <0.24 1 38.5% 72.5% 1525-2 8/10/00 XREC DUPL 010 54830255 54830255 54830255 90891 GREEN BAY FEED CONC <0.26 1 64.6% 1625-2 ZREC 8/10/00 DUPL OID 54830255 54830255 1 54830255 90892 GREEN BAY FEED CONC <0.24 35.6% 64.3% 1715-2 8/10/00 XREC DUPL. OID 54830255 54830255 54830255 BL#01 METHOD BLANK D1 CONC <0.25 64.1% XREC DUPL 010 54830255 54830255 54830255 BL#02 LCS 01 CONC 2.32 74.6% XREC 92.8 DUPL OID 54830255 54830255 54830255 PCB-1260 PCB-1260 TclXYL-S 2,4,5,6-Tetrachloro-m-xylene(Surrogate(60-150 WS Decachlorobiphenyl(Surrogate (40-140 WS))

Jobfile Number: 90883

Project: GREEN BAY - OLIN-ESTES
Account Number: 0054PD-92310183
Date Received: 21 AUG 00

Job#	Sample	Tst	Analyte	% REC	% SDUPL	RPD	OID
90883 90883 90883	90885 90885 90885	137 143 145	PCB-1016 PCB-1260 TCLXYL-S DCLBP	88.4 78.8	82.8 74.8 68.2 68.6	6.5 5.2 9.7 8.8	54830255 54830255 54830255 54830255

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Job Descri	ption: GREEN BAY - OLIN-ESTES	Jo	b File Number: 90883
	ECB Quality Ass	urance Corrective Action	
Analysis Analyst:	: PCB		26-September-00
Problem	: Instrument integrated incorre	ectly because of low responses or	concentrations.
Sample	Number(s) Affected: 9088	33-90892	~_
Recomm	nended Corrective Action: Re-i	nlegrate manually	
			·
Correct	ive Action Taken By Analyst: San	ne as above.	
Commo	ents: Re-integrated manually and	I reported values. If there are que	estions, please call.
Date C Review	1 2	5-september-00 Melan	

DATE: 13 MAR C

SUPPLY WATER		EDTIMU. ODE	EN DAV -	0118-55750		- 109	NUMBER:	005420-92	310183	RECEIPT DATE	E: 21 AUG
ANALYTE				- OFIN-E21E2			SAMPLE:			COMPLETION DAT	
ANALYTE		COLUMN		1	2 .	3	4		Ś	6	
PPH					4	5	,6	S	7.	. 8	
90893 GREEN BAY FEED CONC 0.005 <0.000 93.2 60.000					CD	CR	C	טט	PB	HG.	
SUPPLY NATER	Ş	CRIPTION									
SUPPLY WATER	REI	EN BAY	CONC	0.005	<0.0002	0.006	0	0.003	<0.001	<0.0002	o (
90894 GREEN BAY FEED CONC 0.004 <0.000 1400-1 8/10/00 XREC DUPL OID 01260271 01260271	JPI	PLY WATER	XREC	126.0	93.2	90.6	ļε	30.2	97.2	94.0	. F
90894 GREEN BAY FEED CONC 0.004 <0.000 1400-1 8/10/00 XREC DUPL OID 01260271 012602 HGA AU 0.000	/1	0/00 0930	DUPL.	0.005	<0.0002	0.005		0.003	<0.001	<0.0002	
90894 GREEN BAY FEED CONC 0.004 <0.000 1400-1 8/10/00			OID	01260271	01260271	01260271	*.	01260271	01260271	0465025	5
1400-1 8/10/00					HGA AUTH	HGA AUTH	1	HGA AUTH	HGA AUTH		
90895 GREEN BAY FEED CONC 0.004 <0.000 1400-2 8/10/00 2REC DUPL OID 01260271 012602 160	₹E	EN BAY FEED	CONC	0.004	<0.0002	0.004	10	0.003	<0.001	<0.0002	0
90895 GREEN BAY FEED CONC 0.004 <0.000 1400-2 8/10/00 %REC DUPL OID 01260271 01260271	40	Ó-1 8/10/00	XREC		Į.	1	Į		1	ļ.	!
90895 GREEN BAY FEED CONC 0.004 <0.000 1400-2 8/10/00 %REC DUPL OID 01260271 012602 HGA AL		•				!	!		1 047/57**	0465025	_ 1
90895 GREEN BAY FEED CONC 0.004 <0.000 1400-2 8/10/00 %REC DUPL O1260271 012602 HGA AL 90896 GREEN BAY FEED CONC 0.004 <0.000 1505-1 8/10/00 %REC DUPL O1260271 012602 HGA AL 90897 GREEN BAY FEED CONC 0.003 <0.000 1505-2 8/10/00 %REC DUPL O10 01260271 012602 HGA AL 90898 GREEN BAY FEED CONC 0.003 <0.000 HGA AL 90898 GREEN BAY FEED CONC 0.004 <0.000 1525-2 8/10/00 %REC DUPL O10 01260271 012602 HGA AL 90898 GREEN BAY FEED CONC 0.004 <0.000			OID	01260271	01260271	01260271		01260271	01260271		- 1
1400-2 8/10/00 %REC DUPL OID 01260271 012602 HGA AL 90896 GREEN BAY FEED CONC 0.004 <0.000 1505-1 8/10/00 %REC DUPL OID 01260271 012602 HGA AL 90897 GREEN BAY FEED CONC 0.003 <0.000 1505-2 8/10/00 %REC DUPL OID 01260271 012602 HGA AL 90898 GREEN BAY FEED CONC 0.004 <0.000 1525-2 8/10/00 %REC DUPL OID 01260271 012602 HGA AL 90898 GREEN BAY FEED CONC 0.004 <0.000 1525-2 8/10/00 %REC DUPL OID 01260271 012602 HGA AL 90898 GREEN BAY FEED CONC 0.004 <0.000 1525-2 8/10/00 %REC DUPL OID 01260271 012602 HGA AL 90898 GREEN BAY FEED CONC 0.004 <0.000 1525-2 8/10/00 %REC DUPL OID 01260271 012602 HGA AL 90898 GREEN BAY FEED CONC 0.004 <0.000 1525-2 8/10/00 %REC DUPL OID 01260271 012602 HGA AL 90898 GREEN BAY FEED CONC 0.004 <0.000 90898 GREEN BAY FEED CONC 0.004 <0.000 90898 GREEN BAY FEED CONC 0.004 <0.000 90898 GREEN BAY FEED CONC 0.004 <0.000 90898 GREEN BAY FEED CONC 0.004 <0.000 90898 GREEN BAY FEED CONC 0.004 <0.000 90898 GREEN BAY FEED CONC 0.004 <0.000 90898 GREEN BAY FEED CONC 0.004 <0.000 90898 GREEN BAY FEED CONC 0.004 <0.000 90898 GREEN BAY FEED CONC 0.004 <0.000 90898 GREEN BAY FEED CONC 0.004 <0.000 90898 GREEN BAY FEED CONC 0.004 <0.000 90898 GREEN BAY FEED CONC 0.004 <0.000 90898 GREEN BAY FEED CONC 0.004 <0.000 90898 GREEN BAY FEED CONC 0.004 <0.000 90898 GREEN BAY FEED CONC 0.004 <0.000 90898 GREEN BAY FEED CONC 0.004 <0.000 90898 GREEN BAY FEED CONC 0.004 <0.000 90898 GREEN BAY FEED CONC 0.004 <0.000 90898 GREEN BAY FEED CONC 0.004 <0.000 90898 GREEN BAY FEED CONC 0.004 <0.000 90898 GREEN BAY FEED CONC 0.004 <0.000 90898 GREEN BAY FEED CONC 0.004 <0.000 90898 GREEN BAY FEED CONC 0.004 <0.000 90898 GREEN BAY FEED CONC 0.004 <0.000 90898 GREEN BAY FEED CONC 0.004 <0.000 90898 GREEN BAY FEED CONC 0.004 <0.000 90898 GREEN BAY FEED CONC 0.004 <0.000 90898 GREEN BAY FEED CONC 0.004 <0.000 90898 GREEN BAY FEED CONC 0.004 <0.000 90898 GREEN BAY FEED CONC 0.004					HGA AUTH	HGA; AUTH	ı	HGA, AUTH	HGA AUTH		
1400-2 8/10/00	RE	EN BAY FEED	CONC	0.004	<0.0002	0,005	10	0.003	<0.001	<0.0002	0 [
90896 GREEN BAY FEED CONC 0.004 <0.000 1505-1 8/10/00 XREC DUPL OID 01260271 012602 3 3 3 3 3 3 3 3 3		•			1	1	- 1		1	ļ	!
90896 GREEN BAY FEED CONC 0.004 <0.000 1505-1 8/10/00 %REC DUPL OID 01260271 012602 HGA AL						1	Ţ		43-10		
90896 GREEN BAY FEED CONC 0.004 <0.000 1505-1 8/10/00 XREC DUPL OID 01260271 012602 1505-2 8/10/00 XREC DUPL OID 01260271 01260271			DID	01260271	01260271	01260271	•	01260271	01260271	0465025	>
1505-1 8/10/00 XREC DUPL OID 01260271 012602 HGA AU 90897 GREEN BAY FEED CONC 0.003 <0.000 1505-2 8/10/00 XREC DUPL OID 01260271 012602 HGA AU 90898 GREEN BAY FEED CONC 0.004 <0.000 1525-2 8/10/00 XREC DUPL OID 01260271 012602 010 01260271 012602					HGA AUTH	HGA AUTH	1	HGA AUTH	HGA AUTH		
1505-1 8/10/00	RE	EN BAY FEED	CONC	0.004	\$0.000	0.005	10	0.002	<0.001	<0.0002	20
90897 GREEN BAY FEED CONC 0.003	50	5-1 8/10/00	XREC		1	J	Ţ		!	Į.	ŀ
90897 GREEN BAY FEED CONC 0.003 <0.000 1505-2 8/10/00			DUPL		1	Ţ.	1				ا ا
90897 GREEN BAY FEED CONC 0.003 <0.000 1505-2 8/10/00 XREC DUPL 010 01260271 01260271			OID.	01260271	01260271	01260271		01260271	01260271		15.
1505-2 8/10/00 %REC DUPL 010 01260271 012602 90898 GREEN BAY FEED CONC 0.004 <0.000 1525-2 8/10/00 %REC DUPL 01D 01260271 012602					HTUA ADH	HGA AUTH	Í	HGA AUTH	HGA AUTH		
90898 GREEN BAY FEED CONC 0.004 <0.001 1525-2 8/10/00 7.8EC 0.004 <0.001 0.004 <0.001 0.004 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <	RE	EEN BAY FEED	CONC	0.003	<0.0002	0.005	1.	0.002	<0.001	<0.0002	20
90898 GREEN BAY FEED CONC 0.004 CO.000 1525-2 8/10/00 %REC DUPL 01D 01260271 01260	50	05-2 8/10/00	%REC		T	1	Į.			ļ	
90898 GREEN BAY FEED CONC 0.004 <0.000 1525-2 8/10/00 %REC DUPL 01D 01260271 01260			DUPL		1	I.	1				. !
90898 GREEN BAY FEED CONC 0.004 <0.000 1525-2 8/10/00 %REC DUPL 01D 01260271 01260			010	01260271	01260271	01260271		01260271	01260271		25
1525-2 8/10/00					HGA AUTH	HGA AUTH		HGA AUTH	HGA AUT		
DUPL 01260271 01260	iRi	EEN BAY FEED	CONC	0.004	1 <0.0002	0.005	1.	0.002	<0.001	<0.000	20
OID 01260271 01260	15	25-2 8/10/00	%REC.			ļ	Į.		ļ	1	.
•			DUPL				!	040/0571	049/05	l overbor	E .
HGA A			DID	01260271	01260271	01260271		01260271	0126027	•	أخو
					HGA AUTH	HGA AUTH		HGA AUTH	HGA: AUTI		
AS Arsenic					•	CD	Cadmiun	п			
CR Chromium	C	hromium				HG:	Copper				

DATE: 13 MAR

	ESCRIPTION: GREE		- OLIN-ESTES			NUMBER: 0054PD-		RECEIPT DATE:	
	COLUMN		ä	2	3	4	5	6	
	ANALYTE		2	4	5	6	7	8	
	PPH			CD	CR.	ĊU	PB	HG	
AMP #	DESCRIPTION								
0905	GREEN BAY	CONC	0.004	<0.0002	0.005	0.002	<0.001	<0.00020	1
0702	1400-2 8/10/00	%REC	5,004	1	1	1	i	i	ì
	OVERFLOW	DUPL		- {	;	1	i i	i	- 1
	OVERFLOW	OLD	01260271	01260271	01260271	01260271	01260271	04650255	- 1
		Otb	G1200271	HGA AUTH	HGA AUTH	HTUA ADH	HGA AUTH	1 01000	'
				nua Aoin	IIIA NOTII	tion, north	(Id. 710) II		
0906	GREEN BAY	CONC	0.005	<0.0002	1 0.005	0.002	<0.001	<0.00020	- 1
•,••	1505-1 8/10/00	XREC		1	i	Ì	i	i	j
	OVERFLOW	DUPL		i i	i	į	i		i
	- 1,2m	010	01260271	01260271	01260271	01260271	01260271	04650255	j
		46.5		NGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH	ŕ	
0907	GREEN BAY	CONC	0.004	1 <0.0002	0.005	0.002	<0.001	<0.00020	- 1
	1505-2 8/10/00	ZREC		ĺ	i	Ï	ĺ	į	ĺ
	OVERFLOW	DUPL		j	i	į	į	İ	1
		DID	01260271	01260271	01260271	01260271	01260271	04650255	1
				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
		-	0.007	. <0.0002	0.006	0.002	<0.001	<0.00020	1
0908	GREEN BAY		0.004	₹0.0002	1 0.000	1 0,002	1 40.001	1 40.00020	i
	1525-1 8/10/00	XREC		!	1	1	1	}	- 1
	OVERFLOW	DUPL	010/0271	1 012/0271	04240271	01260271	01260271	04650255	
		010	01260271	01260271	01260271	HGA AUTH	HGA AUTH	1 04030533	1
				HGA AUTH	HGA AUTH	NUA AUIN	HION ADIN		
0909	GREEN BAY	CONC	0,003	<0,0002	0.005	0.002	<0.001	<0.00020	í
0303	1525-2 8/10/00	ZREC	126.6	93.2	1 95.4	86.6	91.8	90.0	i
	DVERFLOW	DUPL	0.003	<0.0002	0.005	0.002	<0.001	<0.00020	i
	DVERFLOW	DID	01260271	01260271	01260271	01260271	01260271	04650255	i
		010	01200271	HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH	,	1
				ada Aora.	יין פאן אפווי	neg nem	man man	•	
0910	GREEN BAY	CONC	0.004	<0.0002	0.006	0.003	<0.001	<0.00020	1
0710	1625-1 8/10/00	XREC			i i	1	i	i '	ĺ
	OVERFLOW	DUPL		i	•	i	i	ĺ	į
		OID	01260271	01260271	01260271	01260271	01260271	04650255	i
		710	3. ,	HGA AUTH	HGA AUTH	•	HGA AUTH	•	•
					-	· 6- 4-2 ·			
IS	Arsenic				CD	Cadmium			
R	Chromium				€n	Copper			
В	Lead				HG	Mercury			

									•
	DESCRIPTION: GREE RESERVATIVE: HNO		- CLIN-ESTES			B NUMBER: 0054PD-9 F SAMPLE: WATER		RECEIPT DATE: COMPLETION DATE:	21 AUG 13 MAR
	COLUMN			2	3	4	5	6	
	ANALYTE		2	4	5	6	7	8	
	PPM		AS	CD	CR	cu	PB	HG	
SAMP #	DESCRIPTION								
20911	GREEN BAY 1625-2 8/10/00	X REC	0.005	<0.0002	0.007	0.002	<0,001 	<0.00020 	1
	OVERFLOW	DUPL	01260271	01260271 HGA AUTH	 01260271 HGA AUTH	 01260271 HGA AUTH	 01260271 HGA AUTH	04650255	
0912	GREEN BAY 1715-1 8/10/00	*REC	0.004	<0.0002 	0.006	0.002	<0.001 	<0.00020 	1
	OVERFLOW	DUPL	01260271	01260271 HGA AUTH	01260271 HGA AUTH	 01260271 HGA AUTH	 01260271 HGA AUTH	04650255	l
0913	GREEN BAY 1715-2 8/10/00 OVERFLOW	CONC %REC	0.004	<0.0002	a.005 	0.002	<0.001 	<0.00020 	
		OID	01260271	01260271 HGA AUTH	01260271 HGA AUTH	01260271 HGA AUTH	01260271 HGA AUTH	04650255	İ
L#01	METHOD BLANK 01	CONC XREC DUPL	<0.002	<0.0002 	<0.001 	<0.001 	<0.001 	<0.00020 	
		010	01260271	01260271 HGA AUTH	01260271 HGA AUTH	01260271 HGA AUTH	01260271 HGA AUTH	04650255	i
L#02	LCS 01	CONC XREC DUPL	0.050 100.0	0.0518	0.052	0.048 96.4	0.050 100.6 	0.000765	
		010	01260271	01260271 HGA AUTH	17506510 HTUA ADH	01260271 HGA AUTH	01260271 HGA AUTH	04650255	i
L#03	EXTERNAL QC 01	CONC XREC DUPL	0.428 110.3	0.174	0.522	99.5	0.619	0.000624	1
		OID	01260271	01260271 HGA AUTH	01260271 HGA AUTH	01260271 HGA AUTH	 01260271 HGA AUTH	04650255	i
S	Arsenic				CD	Cadmium			
R B	Chromium Lead				CU	Copper			

 ENVIRONMENTAL.	CHEMISTRY	RRANCH	DATA	REPORTING	SHEET	:ť	PAGE	5 OF	12)	***

90893 GREEN SUPPL 8/10/ 90894 GREEN 1400- 90895 GREEN 1400- 90896 GREEN 1505	COLUMN ANALYTE PPH RIPTION I BAY Y WATER 700 0930 N BAY FEED 1 8/10/00 N BAY FEED 2 8/10/00	CONC TREC DUPL OID CONC TREC DUPL OID	9 NI	8 10 SE 0.002 131.0 0.002 01260271 0.002 01260271	9 11 AG <0.001 81.8 <0.001 01260271 HGA AUTH <0.001 <0.001	10 13 2N 0.046 83.0 0.045 0126027	1.1 25 BA 0.108 94.4 0.107 01260271	0.047 	1
0893 GREEN SUPPL 8/10/ 0894 GREEN 1400- 0895 GREEN 1400- 0896 GREEN 1505	ANALYTE PPH RIPTION I BAY Y WATER 700 0930 N BAY FEED 1 8/10/00	CONC TREC DUPL OID CONC TREC DUPL OID	9 NI 0.014 83.6 0.014 01260271 HGA AUTH 0.009 01260271 HGA AUTH 0.010	10 SE 0.002 131.0 0.002 01260271 0.002 01260271	11 AG 40.001 81.8 <0.001 01260271 HGA AUTH 01260271 HGA AUTH	13 2N 0.046 83.0 0.045 0126027	25 BA 0.108 94.4 0.107 01260271 0.302	30 FE 0.080 8.8 0.077 01260271	
0893 GREEN SUPPL 8/10/ 8/10/ 9/0894 GREEN 14/00- 9/0895 GREEN 14/00- 9/0896 GREEN 15/05	PPM RIPTION # BAY Y WATER 700 0930 N BAY FEED 1 8/10/00	CONC XREC DUPL OID CONC XREC DUPL OID	0.014 83.6 0.014 01260271 HGA AUTH 0.009 01260271 HGA AUTH 0.010	0.002 131.0 0.002 01260271 0.002 01260271	AG <0.001 81.8 <0.001 01260271 HGA AUTH <0.001 01260271 HGA AUTH <0.001 01260271 HGA AUTH HGA AUTH <0.001 01260271 HGA AUTH	0.046 83.0 0.045 0126027	BA 0.108 94.4 0.107 01260271 0.302 01230269	0.080 8.8 0.077 01260271 0.047 01260271	1
0893 GREEN SUPPL 8/10/ 0894 GREEN 1400- 0895 GREEN 1400- 0896 GREEN 1505	PPM RIPTION # BAY Y WATER 700 0930 N BAY FEED 1 8/10/00	CONC XREC DUPL OID CONC XREC DUPL OID	0.014 83.6 0.014 01260271 HGA AUTH 0.009 01260271 HGA AUTH 0.010	0.002 131.0 0.002 01260271 0.002 01260271	<0.001 81.8 <0.001 01260271 HGA AUTH <0.001 01260271 HGA AUTH	0.046 83.0 0.045 0126027	0.108 94.4 0.107 01260271 0.302	0.080 8.8 0.077 01260271 0.047 01260271	
0893 GREEN SUPPL 8/10/ 0894 GREEN 1400- 0895 GREEN 1400- 0896 GREEN 1505	H BAY Y WATER 700 0930 N BAY FEED -1 8/10/00	XREC DUPL OID CONC XREC DUPL OID CONC XREC DUPL	83.6 0.014 01260271 HGA AUTH 0.009 01260271 HGA AUTH 0.010	131.0 0.002 01260271 0.002 01260271	81.8 <0.001 01260271 HGA AUTH <0.001 01260271 HGA AUTH	83.0 0.045 0126027 0.095	94.4 0.107 1 01260271 0.302	8.8 0.077 01260271 0.047 01260271	1
SUPPL 8/10/	Y WATER //OO 0930 N BAY FEED -1 8/10/00	XREC DUPL OID CONC XREC DUPL OID CONC XREC DUPL	83.6 0.014 01260271 HGA AUTH 0.009 01260271 HGA AUTH 0.010	131.0 0.002 01260271 0.002 01260271	81.8 <0.001 01260271 HGA AUTH <0.001 01260271 HGA AUTH	83.0 0.045 0126027 0.095	94.4 0.107 1 01260271 0.302	8.8 0.077 01260271 0.047 01260271	
SUPPL 8/10/	Y WATER //OO 0930 N BAY FEED -1 8/10/00	XREC DUPL OID CONC XREC DUPL OID CONC XREC DUPL	83.6 0.014 01260271 HGA AUTH 0.009 01260271 HGA AUTH 0.010	131.0 0.002 01260271 0.002 01260271	<0.001 01260271 HGA AUTH <0.001 01260271 HGA AUTH	0.045	0.107 0.1260271 0.302	0.077	1
8/10/ 0894 GREEN 1400- 0895 GREEN 1400- 90896 GREEN 1505	N BAY FEED -1 8/10/00	CONC XREC DUPL OID CONC XREC DUPL	0.014 01260271 HGA AUTH 0.009 01260271 HGA AUTH 0.010	0.002 01260271 0.002 01260271	<0.001 01260271 HGA AUTH <0.001 01260271 HGA AUTH	0.095 0.095 0.095	0.302 0.302 	0.047 0.047 0.1260271	1
0894 GREEN 1400- 20895 GREEN 1400- 20896 GREEN 1505- 20897 GREEN	N BAY FEED -1 8/10/00	CONC TREC DUPL OID	01260271 HGA AUTH 0.009 01260271 HGA AUTH 0.010	01260271 0.002 01260271	01260271 HGA AUTH 0.001 01260271 HGA AUTH	0.095 0126027	0.302 - - 	0.047	
1400- 00895 GREEI 1400- 90896 GREE 1505	-1 8/10/00	CONC XREC DUPL OID CONC XREC DUPL	HGA AUTH 0.009 01260271 HGA AUTH 0.010	0.002	HGA AUTH <0.001 01260271 HGA AUTH	 0126027	71 01230269	01260271	 - - -
1400- 00895 GREEI 1400- 90896 GREE 1505	-1 8/10/00	XREC DUPL OID CONC XREC DUPL	01260271 HGA AUTH	01260271	01260271 HGA AUTH	 0126027	71 01230269	01260271	
1400- 90895 GREEI 1400- 90896 GREE 1505	N BAY FEED	DUPL OID CONC XREC DUPL	HGA AUTH	0.002 	HGA AUTH				
1400- 90896 GREE 1505 90897 GREE		CONC MREC DUPL	HGA AUTH	0.002 	HGA AUTH				
1400- 90896 GREE 1505 90897 GREE		CONC XREC DUPL	HGA AUTH	0.002 	HGA AUTH		•	0.083 	
1400- 90896 GREE 1505 90897 GREE		XREC DUPL			<0.001] 0.071 	0.264 	0.083 	
1400- 0896 GREE 1505 90897 GREE		XREC DUPL			į	į	1	ļ.	
90896 GREE 1505 90897 GREE	-2-8/10/00	DUPL	01240271		i	· i		1.	
1505 90897 GREE		- ,	01740271				1	l	
1505 90897 GREE				01260271	01260271	012602	71 01230269	01260271	
1505 90897 GREE			HGA AUTH	1 5 1-15-13	HGA AUTH	•			
1505 90897 GREE	N BAY FEED	CONC	0.009	0.002	<0.001	8.042	0.183	0.073	
90897 GREE	-1 8/10/00	ZREC		i	Ì	- 1		ļ	
	, 0, 10, 00	DUPL		i	i	1	ļ	1	
		OID	01260271	01260271	01260271	012602	71 0123026	9 01260271	
		CID	HGA AUTH	, , , , , , , , , , , , , , , , , , , ,	HGA AUTH	•			
	N BAY FEED	CONC	0.010	1 0.002	<0.001	0.050	0.205	0.407	
	-Z 8/10/00	ZREC		i	i	- 1	. 1		
(303	, 2 0, 10,00	DUPL		i	i	1	l	•	
		010	01260271	01260271	01260271	012602	71 0123026	9 01260271	
			HGA AUTH	•	HGA AUTH				
90898 GREE	EN BAY FEED	CONC	0.010	0.002	<0.001	0.045	0.194	0.055	
6.77	5-2 8/10/00	%REC		i	1	1	1	.[
1.36.1	2.0, 10,00	DUPL		i	ŀ	١		1	
		OID	01260271	01260271	01260271	012602	71 0123026	9 01260271	
		0.0	HGA AUTH	• 20 20 0	HGA AUTH	-			
NI Nic	ckel				SE	Selenium			
					ZN	Zinc			
BA Bai	lver				FE	Iron			

					. ,	WINDED. 005/00 0	-	RECEIPT DATE:	21 414
	ESCRIPTION: GREE ESERVATIVE: HNO3		· OLIN-ESTES			NUMBER: 0054PD-9 SAMPLE: WATER		DMPLETION DATE:	
	COLUMN		7	8	9	10	11	12	
	ANALYTE		9	10	11	13	25	30	
	PPM	•••••	MI	SE	AG	ZN	BA	FE	
AMP #	DESCRIPTION								
0899	GREEN BAY FEED	CONC	0.010	0.002	<0.001	0.038	0.168	0.425	i
	1525-2 8/10/00	XREC		i	İ	1	1	1	1
		DUPL		İ	1	1	!	!	- !
		010	01260271	01260271	01260271	01260271	01230269	01260271	- 1
			HGA AUTH		HTUA ADH				
2000	COPEN DAY EEED	CONC	0.009	1 0,002	<0.001	0.022	0.127	1 0.021	ı
0900	GREEN BAY FEED 1625-1 8/10/00	%REC	0.007	1	1	1		i	ĺ
	1023 7 0, 10,00	DUPL			i	i	İ	į	ĺ
		OID	01260271	01260271	01260271	01260271	01230269	01260271	- 1
			HGA AUTH		HGA AUTH				
0901	GREEN BAY FEED	CONC	0.009	0.002	<0.001	0.019	0.111	<0.020	- 1
ÚVÚ I	1625-2 8/10/00		86.4	131.4	84.6	82.4	96.8	116.0	i
	1025 2 0, (-,		0.009	0.002	<0.001	0.018	0.110	<0.0020	- 1
		010	01260271	01260271	01260271	01260271	01230269	01260271	1
			HGA AUTH		HGA AUTH				
0902	GREEN BAY FEED	CONC	0.010	1 0.002	<0.001	1 0.024	0.141	0.032	- 1
10702	1715-1 8/10/00	XREC	0.010	1			i	i	j
		DUPL.		i	į	İ	ļ	!	ļ
		OID	01260271	01260271	01260271	01260271	01230269	01260271	- 1
			HGA AUTH		HGA AUTH				
20903	GREEN BAY FEED	CÓNC	0.010	0.002	<0.001	0.022	0.133	0.033	- 1
10703	1715-2 8/10/00	%REC	*****	i	i	İ	İ	İ	- 1
		OUPL		İ	l	! 2	!	!	ļ
		010	01260271	01260271	01260271	01260271	01230269	01260271	- 1
			HGA AUTH		HGA AUTH				
0904	GREEN BAY	CONC	0.009	1 0.002	<0.001	0.062	0.246	0.111	- 1
70704	1400-1 8/10/00	XREC				į	j	İ	İ
	OVERLEOW	DUPL		i	İ		1	į	ļ
		OID	01260271	01260271	01260271	01260271	01230269	01260271	1
			HGA AUTH		HGA AUTH				

	ESCRIPTION: GREE RESERVATIVE: HNO		- OLIN-ESTES	*:		NUMBER:	0054PD-92	2310183	RECEIPT DATE: COMPLETION DATE:	21 AU 13 MA
	COLUMN		7	8	9.	10	1	11	12	
	ANALYTE		9	10	11	13	ì	25	30	
	PPN		NI	SE	AG	ZN	ľ	BA.	FE:	
SAMP #	DESCRIPTION				•					
90905	GREEN BAY 1400-2 8/10/00	CONC %REC	0.008	0.002 	<0.001 	0.	077	0.263	0.053	ļ. . ļ .
	OVERFLOW	DUPL 010	01260271	01260271	01260271	 01	260271	01230269	01260271	
			HGA AUTH		HGA. AUTH					
70706	GREEN BAY 1505-1 8/10/00 OVERFLOW	CONC XREC DUPL	0.009	0.002	(<0.001	0. 	041	0.180	0.024	<u> </u>
	OVER! EOM	OID	01260271 HGA AUTH	01260271	01260271 HGA AUTH	01	260271	01230269	01260271	Ť
90907	GREEN BAY 1505-2 8/10/00 OVERFLOW	CONC ZREC DUPL	0.009	0.002 	<0.001 	c.	.046	0.197	0.153 	
		OID	01260271 HGA AUTH	01260271	01260271 HGA AUTH	01	260271	01230269	01260271	i
90908	GREEN BAY 1525-1 8/10/00 OVERFLOW	CONC XREC DUPL	0.010	1 0.002	<0.001 	0. -	047	0.186	0.034	
		OID	01260271 HGA AUTH	01260271	01260271 HGA_AUTH	01	260271	01230269	01260271	Ì
90909	GREEN BAY	CONC	0.009	0.002	<0.001	0.	042	0, 193	0.130	1
17.74	1525-2 8/10/00	%REC	88.8	129.2	8.2	81	.2	96.4	98.8	i
	OVERFLOW	DUPL	0.009	0.002	<0.001	j a.	043	0.193	0.135	į
		OID	01260271 HGA AUTH	01260271	01260271 HGA AUTH	j, ot	260271	01230269	01260271	İ
90910	GREEN BAY	CONC	ó.010	0.002	<0.001	1 0.	021	0.121	0.033	. 1
	1625-1 8/10/00 OVERFLOW	ZREC			į	į	***	į	j	į
		OID	01260271	01260271	01260271	i 01	260271	01230269	01260271	i
			HGA AUTH	, -,	HGA AUTH			• 2013 TET	F	. *
NI	Nickel				SE.	Selenium				
AG	Silver				ZN	Zinc				
BA	Barium				FÉ .	Iron				

COLLIN		DESCRIPTION: GREEN		- OLIN-ESTES			B NUMBER: F SAMPLE:	0054PD-923	10183	RECEIP COMPLETIO	T DATE: N DATE:	
SAMP # DESCRIPTION NG				17	14							
SAMP # DESCRIPTION SAMP # DESCRIPTION 90899												
90899 GREEN BAY FEED CONC 77.9 1.97 0.002					MN	MO						
1525-2 8/10/00	SAMP #	DESCRIPTION										
1525-2 8/10/00	00900	COFFE DAY EEED	CONC	77.0	l 1 07	I n nn2	1					
DLPL	70077			11.7	1	1 0.002	i					
90900 GREEN BAY FEED CONC 77.3 1.59 0.003		,505 2 0, 10, 00			i	i	i					
1625-1 8/10/00			OID	01230269	01230269	01260271	1					
1625-1 8/10/00	nnone	COFFN RAY FFFD	CONC	77.3	l 1.59	1 0.003	1					
DUPL	,0,00						i					
90901 GREEN BAY FEED CONC 77.3 1.30 0.003 1625-2 8/10/00 276.9 1.29 0.003 01230269 01230269 01260271 01250269 01250269 01250269 01260271 01250269 01250269 01250269 01250269 01250271 01250269 01250269 01250269 01250271 01250269 01250269 01250271 01250269 01250269 01250271 01250269 01250269 01250271 01250269 01250269 01250271 01250269 01250269 01250271 01250269 01250271 01250269 01250269 01250271 01250269 01250269 01250271 01250269 01250271 01250269 01250271 01250269 01250271 01250269 01250269 01250271 01250269 01250269 01250271 01250269 01250269 01250271 01250269 01250271 01250269 01250269 01250271 01250269 01250269 01250271 01250269 01250271 01250269 01250269 01250271 01250269 01250269 01250271 01250269 01250269 01250271 01250269 01250269 01250271 01250269 01250269 01250271 01250269 01250269 01250271 01250269 01250269 01250271 01250269 01250269 01250271 01250269 01250269 01250271 01250269 01250269 01250271 01250269 01250269 01250269 01250269 01250271 01250269 01250269 01250271 01250269 01250269 01250271 01250269 01250269 01250271 01250269 01250269 01250271 01250269 01250269 01250271 01250269 01250269 01250271 01250269 01250269 01250271 01250269 01250269 01250271 01250269 01250269 01250271 01250269 01250269 01250271 01250269 01250269 01250271 01250269 01250269 01250271 01250269 01250269 01250271					İ	i	į					
1625-2 8/10/00			OID	01230269	01230269	01260271	ı					
1625-2 8/10/00	90901	GREEN RAY FEED	соме	77.3	1.30	1 0.003	1					
90902 GREEN BAY FEED CONC 76.7 1.41 0.002 1715-1 8/10/00 78.0 1.46 0.002 1715-2 8/10/00 78.0 1.46 0.002 1715-2 8/10/00 78.0 1.46 0.002 1715-2 8/10/00 78.0 1.46 0.002 1715-2 8/10/00 78.0 1.46 0.002 1715-2 8/10/00 78.0 1.46 0.002 1715-2 8/10/00 78.0 1.46 0.002 1715-2 8/10/00 0.002 0.005 0.00	,0,0,				•	*	i					
90902 GREEN BAY FEED CONC 76.7 1.41 0.002			DUPL	76.9	1.29	0.003	-					
1715-1 8/10/00 %REC DUPL OID 01230269 01230269 01260271 90903 GREEN BAY FEED CONC 78.0 1.46 0.002 1715-2 8/10/00 %REC DUPL OID 01230269 01230269 01260271 90904 GREEN BAY CONC 78.6 1.72 0.005 1400-1 8/10/00 %REC OVERLEON DUPL 0.005			OID	01230269	01230269	01260271	ı					
90903 GREEN BAY FEED CONC 78.0 1.46 0.002 1715-2 8/10/00 78.0 1.46 0.002 01230269 0	90902	GREEN BAY FEED	CONC	76.7	1.41	0.002	ı					
90903 GREEN BAY FEED CONC 78.0 1.46 0.002		1715-1 8/10/00	%REC		1	1	!					
90903 GREEN BAY FEED CONC 78.0 1.46 0.002 1715-2 8/10/00 XREC				042702/0	01270240	0.740271	ļ					
1715-2 8/10/00			OID	01230209	1 01230209	1 01200271	,					
1715-2 8/10/00	90903	GREEN BAY FEED	CONC	78.0	1.46	0.002	- 1					
90904 GREEN BAY CONC 78.6 1.72 0.005 1400-1 8/10/00 %REC 0VERLEOW DUPL					i	j	į					
90904 GREEN BAY CONC 78.6] 1.72 0.005 1400-1 8/10/00 %REC					1		!					
1400-1 8/10/00 %REC OVERLEOW DUPL			010	01230269	1 01230269	1 01260271	,					
OVERL FOW DUPL	90904	GREEN BAY	CONC	78.6] 1.72	0.005	1					
					!	!	ļ					
UID UIZSUZOY UIZSUZOY UIZSUZOY		OVERLFOW		010702/0	01770760	01240271						
			010	01230209	01230204	01200271	'					
MG Magnesium MN Manganese						ми	Manganes	se				
MO Molybdenum	MD	Molybdenum										
											•	

-2 8/10/00 FLOW N BAY -1 8/10/00 FLOW	13 4G CONC 77. XREC DUPL CONC 76 XREC DUPL	.6 230269 .7	14 32 MN 1.63 01230269		NUMBER: OO SAMPLE: WA	54PD-92310183 TER		IPT DATE: ION DATE:	13 MAR
ANALYTE PPM RIPTION N BAY -2 8/10/00 FLOW N BAY -1 8/10/00 FLOW	31 MG CONC 77. XXEC DUPL OID 011 CONC 76 XXEC DUPL	.6 230269 .7	32 MN 1.63 01230269	33 H0 0.003 01260271	1				R
ANALYTE PPM RIPTION N BAY -2 8/10/00 FLOW N BAY -1 8/10/00 FLOW	31 MG CONC 77. XXEC DUPL OID 011 CONC 76 XXEC DUPL	.6 230269 .7	32 MN 1.63 01230269	33 H0 0.003 01260271	1				R
RIPTION N BAY -2 8/10/00 FLOW N BAY -1 8/10/00 FLOW	CONC 77. XREC DUPL OID 017 CONC 76 XREC DUPL	.6 230269 .7	1.63 01230269	0.003 01260271	1				R
N BAY -2 8/10/00 FLOW N BAY -1 8/10/00 FLOW	XREC DUPL OID 017 CONC 76 XREC DUPL	230269	01230269	 01260271	!				R
-2 8/10/00 FLOW N BAY -1 8/10/00 FLOW	XREC DUPL OID 017 CONC 76 XREC DUPL	230269	01230269	 01260271	1				
-2 8/10/00 FLOW N BAY -1 8/10/00 FLOW	XREC DUPL OID 017 CONC 76 XREC DUPL	230269	01230269	•	1				
FLOW N BAY -1 8/10/00 FLOW	CONC 76 XREC DUPL	.7		•	1				
N BAY -1 8/10/00 FLOW	CONC 76 %R'EC DUPL	.7		•	1				
-1 8/10/00 FLCW	XREC Dupl		1.31	0.003 	1				
-1 8/10/00 FLCW	XREC Dupl				1				
FLOW	DUPL		i		1				
			1	İ	j				
		230269	01230269	01260271	1				
U GAV	CONC 77	.0	1.38	0.003	ı				
N BAY -2 8/10/00	%REC	• /	1		i				
FLOW	DUPL		i	i	j				
	OID 01	230269	01230269	01260271	1				
ורות או אצי מיו	CONC <0	.100	<0.001	<0.001	ı				
senar WI	%REC		i	i	i				
	DUPL		1	İ	1				
	010 01	230269	01230269	01260271	i				
01	CONC 4.	70	0.480	0.051	1				
			96.0	102.2	İ				
	DUPL				ļ				
	CID 01	230269	01230269	[01260271	1				
ERNAL QC 01	CONC 34	6	0.566	0.568	I				
			99.1	103.6	İ				
	DUPL				!				
	010 01	1230269	01230269	U1260271	1				
gnesium				MN	<u>Hangane</u> se				
lybdenum									
	O1 ERNAL QC O1	### ##################################	DUPL 010 01230269 01 CONC 4.70 XREC 94.0 DUPL 0ID 01230269 ERNAL QC 01 CONC 34.6 XREC 98.3 DUPL 0ID 01230269	TREC DUPL 010 01230269 012302	XREC	### AREC	### ##################################	### AREC	### AREC

100 BE	SCRIPTION: GRÉE	N DÁV	- OUTH-ESTES		· JOB NU	MBER: 0054PD-923	10183	RECEIPT DATE:	21 AUG
	SERVATIVE:	N DAI	OLIN-ESTES	•	the state of the s	MPLE: SEDIMENT		PLETION DATE:	3 OCT
	COLUMN ANALYTE UG/KG		1 137 PCB-1016	2 138 PCB-1221	3 139 PCB-1232	4 140 PCB-1242	5 141 PCB-1248	6 142 PCB-1254	
SAMP #	DESCRIPTION								ļ
	GREEN BAY 1400-1 8/10/00 OVERFLON		<18.0 99.6	<18.0 	<18.0 	3824	<18.0 	<18.0 	1
		010	54830255	54830255	54830255	54830255	54830255	54830255	ı
90915	GREEN BAY 1505-1 8/10/00	CONC	<20.3	\ <20.3	<20.3 	4376	<20.3	<20.3 	- -
	OVERFLOW	OID	54830255	54830255	54830255	54830255	54830255	54830255	1.
90916	GREEN BAY 1525-1 8/10/00	CONC	<18,0	<18.0 	\ <18.0 	3859: 	<18.0 	<18.0 	1
	OVERFLOW	DUPL	54830255	54830255	54830255	54830255	54830255	54830255	Ï
90917	GREEN BAY 1625-1 8/10/00	CONC	<22.9	(<22.9	<22.9	4719	<22.9	<22.9	
	OVERFLOW	DUPL 01D	54830255	54830255	54830255	54830255	54830255	54830255	ί
90918	GREEN BAY 1715-1 8/10/00	CONC XREC DUPL	<20.6	<20.6	<20.6 	4482	<20.6	<20.6 	
	OVERFLOW-	OID	54830255	54830255	54830255	54830255	54830255	54830255	į
90919	GREEN BAY 1400-2 8/10/00	CONC XREC		<19.0	1 <19.0	3823] <19.0 1	<19.0 	1
	OVERFLOW	OID	54830255	54830255	54830255	54830255	54830255	54830255	i
PCB-1232	PCB-1016 PCB-1232 PCB-1248				PCB-1221 PC PCB-1242 PC PCB-1254 PC	B-1242			

DATE: 03 OCT (JOB FILE: 90914 RECEIPT DATE: 2.... JOB NUMBER: 0054PD-92310183 JOB DESCRIPTION: GREEN BAY - OLIN-ESTES TYPE OF SAMPLE: SEDIMENT CHEM. PRESERVATIVE: 5 COLUMN...... 1 3 4 ANALYTE..... 137 139 140 138 141 142 PCB-1242 PCB-1248 PCB-1254 UG/KG..... PCB-1016 PCB-1232 PCB-1221 SAMP # DESCRIPTION 4659 <20.4 <20.4 <20.4 <20.4 90920 GREEN BAY CONC <20.4 1505-2 8/10/00 XREC OVERFLOW 010 54830255 54830255 54830255 54830255 54830255 54830255 1 3256 <16.7 <16.7 1 <16.7 GREEN BAY CONC <16.7 1 <16.7 1525-2 8/10/00 %REC OVERFLOW DUPI. 54830255 54830255 OID 54830255 54830255 54830255 54830255 | <21.5 | 4243 / <21.5 | <21.5 90922 GREEN BAY CONC <21.5 1625-2 8/10/00 XREC OVERFLOW DUPI. 54830255 54830255 54830255 54830255 54830255 OID 54830255 1 3138 / <16.1 <16.1 <16.1 1 <16.1 90923 GREEN BAY CONC <16.1 1715-2 8/10/00 %REC OVERFLOW DUPL 54830255 54830255 54830255 54830255 010 54830255 54830255 1 <18.4 1 <18.4 CONC <18.4 <18.4 1 <18.4 3446 90924 GREEN BAY FEED %REC 1400-1 8/10/00 DUPL 54830255 O(D 54830255 54830255 54830255 54830255 54830255 <15.5 2933 <15.5 <15.5 GREEN BAY FEED CONC <15.5 <15.5 90925 XREC 1505-2 8/10/00 DUPL 54830255 54830255 54830255 010 54830255 54830255 54830255 PCB-1221 PCB-1221 PCB-1016 PCB-1016 PCB-1242 PCB-1242 PCB-1232 PCB-1232 PCB-1254 PCB-1254 PCB-1248 PCB-1248

DATE: 03 OCT 0

JOB	F	Li	:	503	14	

HEM. PR	ESCRIPTION: GREEN ESERVATIVE:	N BAT :	- OCTU-E2162			MBER: 0054PD-92 MPLE: SEDIMENT		PLETION DATE:	3 OCT
	COLUMN ÄNALYTE UG/KG		137	2 138 PCB-1221	3 139 PCB-1232	4 140 PCB-1242	5 141 PC8-1248	6 142 PCB-1254	
AMP #	DESCRIPTION								F
0926	GREEN BAY FEED 1525-2 8/10/00	XREC	k15.9	<15.9	<u><</u> 15.9 	3216 	<15.9 	<15.9	
		CID	54830255	54830255	54830255	54830255	54830255	54830255	İ
0927	GREEN BAY FEED 1625-2 8/10/00	CONC XREC DUPL	<16.1	<16.1 	<16.1 	2896 	<18.1	<16.1 	1 1 1
		OID	54830255	54830255	54830255	54830255	54830255	54830255	1
0928	GREEN BAY FEED 1715-2 8/10/00	CONC XREC DUPL	<15.8	<15,8 	<15.8 	2869 	<15.8) <15.8 	
		OID	54830255	54830255	54830255	54830255	54830255	54830255	1.
IL#01	METHOD BLANK 01	CONC.	<6.25	√ <6.25 	<6.25 	<6.25	≺ 6.25	<6.25 	
		OID	54830255	54830255	54830255	54830255	54830255	54830255	ı
BL#02	ECS-01	CONC XREC	0.62 98.8	I H/A	N/A	N/A 	[N/A]	H/A	. [. [
		OID	54830255	54830255	54830255	54830255	54830255	54830255	ŀ
PCR-101	6. PCB-1016				PCB-1221 PC	6-1221			
	2 PCB-1232					8-1242 8-1254			

	ESERVATIVE:		- OLIN-ESTES		UOB NUMBER: 0054PD-92310183 RECEIPT DATE: 21 AL TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 3 OC
	COLUMN		7	8	9
	MALYTE		143	145 TCLXYL-\$	146 DCLBP
SAMP #	DESCRIPTION				
90914	GREEN BAY 1400-1 8/10/00 OVERFLOW	CONC %REC DUPL	123 109.2	107% 126	185% 149
		010	54830255	54830255	54830255
90915	GREEN BAY 1505-1 8/10/00 OVERFLOW	CONC TREC	119	93.0%	150%
	OVERPLOW		54830255	54830255	54830255
90916	GREEN BAY 1525-1 8/10/00 OVERFLOW	CONC %REC DUPL	113	106% 	130%
	OVERFLOW	OID	54830255	54830255	54830255
90917	GREEN BAY 1625-1 8/10/00 OVERFLOW	CONC %REC DUPL	64.1	106X 	112x
	STER. EOR	010	54830255	54830255	54830255
90918	GREEN BAY 1715-1. 8/10/00	CONC %REC DUPL	106	98.3%	116%
	OVERFLOW		54830255	54830255	54830255
90919	GREEN BAY 1400-2 8/10/00	CONC %REC	92.9	111%	126%
	OVERFLOW	OID	54830255	54830255	54830255
PC8-126	0 PCB-1260 Decachlorobíph	enyl(S	urrogate (6 0-1	50 WS))	TclXYL-S 2,4,5,6-Tetrachloro-m-xylene(Surrogate(40-140 WS

DATE: 03 OCT (JOB FILE: 90914 JDB NUMBER: 0054PD-92310183 RECEIPT DATE: 21 AUG (JOB DESCRIPTION: GREEN BAY - OLIN-ESTES COMPLETION DATE: 3 OCT (TYPE OF SAMPLE: SEDIMENT CHEM. PRESERVATIVE: ANALYTE..... 143 145 146 TclXYL-S DCLBP UG/KG..... PCB-1260 DESCRIPTION SAMP # 1 121% **CONC** 113 112% 90920 GREEN BAY 1505-2 8/10/00 %REC OVERFLOW DUPL 54830255 010 54830255 54830255 106% 125% 90921 GREEN BAY **CONC** 158 1525-2 8/10/00 %REC DUPL OVERFLOW 54830255 54830255 54830255 CID 122% 1 110% 90922 GREEN BAY CONC 103 1625-2 8/10/00 %REC OVERFLOW DUPL 54830255 DID 54830255 54830255 107% 139% GREEN BAY EONC 107 90923 1715-2 8/10/00 **XREC** DUPL OVERFLOW 54830255 54830255 010 54830255 122% 1 105% 90924 GREEN BAY FEED CONC 90.6 1400-1 8/10/00 XREC DUPL 54830255 54830255 OID 54830255 104% GREEN BAY FEED CONC 116 102% 90925 1505-2 8/10/00 %REC DUPL 54830255 54830255 54830255 010 TclXYL-S 2,4,5,6-Tetrachloro-m-xylene(Surrogate(40-140 WS PCB-1260 PCB-1260 Decachiorobiphenyl(Surrogate (60-150 WS)) DCLBP

DATE: 03 OCT (JOB FILE: .90914 RECEIPT DATE: 21 AUG (JOB NUMBER: 0054PD-92310183 JOB DESCRIPTION: GREEN BAY - OLIN-ESTES COMPLETION DATE: 3 OCT (TYPE OF SAMPLE: SEDIMENT CHEM. PRESERVATIVE: COLUMN..... 7 145 146 ANALYTE..... 143 UG/KG..... PCB-1260 TCLXYL-S DCLBP SAMP # DESCRIPTION 120% GREEN BAY FEED CONC 113 116% 90926 1525-2 8/10/00 XREC DUPL 54830255 54830255 54830255 OID 120% GREEN BAY FEED CONC 138 110% 90927 1625-2 8/10/00 XREC DUPL 010 54830255 54830255 54830255 97.8% 109% GREEN BAY FEED CONC 103 90928 1715-2 8/10/00 XREC DUPL 54830255 54830255 010 54830255 METHOD BLANK 01 CONC <6.25 74.2% 86.3% BL#01 %REC DUPL DID 54830255 54830255 54830255 72.3% CONC 0.61 87.2% BL#02 LCS 01 %REC 97.2 DUPL 54830255 OID 54830255 54830255 TolXYL-S 2,4,5,6-Tetrachloro-m-xylene(Surrogate(40-140 WS PCB-1260 PCB-1260 Decachlorobiphenyl(Surrogate (60-150 WS))

Jobfile Number: 90914
Project: GREEN BAY - OLIN-ESTES
Account Number: 0054PD-92310183

Account Number: 0054PD-92: Date Received: 21 AUG 00

		Tst Analyte		% SDUPL	RPD	OID
90914 90914 90914	90914 90914 90914	137 PCB-1016 143 PCB-1260 145 TclXYL-S 146 DCLBP	99.6 109.2	44.8 115.6 119 154	75.9 5.7 5.7 3.3	54830255 54830255 54830255 54830255

Page 1

y '\ \	DESCRIPTION: GREEN	N BAY	- OLIN-ESTES			MBER: 0054PD-92 AMPLE: SEDIMENT		RECEIPT DATE: PLETION DATE:	
	COLUMN			2	3	4	5	6	
	ANALYTE			4	5	6	7	8	
	MG/KG	• • • • •	AS	CD	CR	cu	PB	HG	
SAMP #	DESCRIPTION								
	ARTEN BAY	CONC	7 70	0.820	42.3	50.9	57.0	1 1.20	1
90929	GREEN BAY	%REC	93.8	95.6	98.6	89.0	102.4	96.0	i
	1400-1 8/10/00 OVERFLOW	DUPL		0.800	41.6	50.3	56.1	1.18	ĺ
	OVERPLOW	OID	01260270	01260270	01260270	01260270	01260270	04650263	ĺ
		0.5	01200270	HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
90930	GREEN BAY	CONC	3.89	0.869	53.7	56.0	64.0	1.51	1
	1505-1 8/10/00	XREC		1	1	ļ.	!		!
	OVERFLOW	DUPL					1.01240220	04650263	
		OID	01260270	01260270 HGA AUTH	01260270 HGA AUTH	01260270 HGA AUTH	01260270 HGA AUTH	1 04030203	'
00031	GREEN BAY	CONC	2.69	0.648	37.5	49.7	48.6	1.22	- 1
90931	1525-1 8/10/00	%REC	2.07	1		i	İ	İ	į
	OVERFLOW	DUPL		i	j	İ	1	Ţ	1
		OID	01260270	01260270	01260270	01260270 HGA AUTH	01260270 HGA AUTH	04650263	ı
				HGA AUTH	HGA AUTH			1	1
90932	GREEN BAY		3.70	0.960	57.6	52.5	69.2	1 1.44	
	1625-1 8/10/00	TREC		i i	1	i	ì	i	í
	OVERFLOW	DUPL	01260270	01260270	01260270	01260270	01260270	04650263	j
		010	01200210	HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
90933	GREEN BAY	CONC	3.50	0.840	52.9	50.5	61.4	1.21	1
AUADO	1715-1 8/10/00	%REC	2			i	İ	I	ļ
	OVERFLOW	DUPL		i	İ		1	1	į
		OID	01260270	01260270	01260270	01260270	01260270	04650263	1
				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
90934	GREN BAY	CONC	4.00	0.840	49.5	53.4	61.4	1.36	Ţ
	1400-2 8/10/00	X REC		1	1	1	1	ļ	1
	OVERFLOW	DUPL		1			1 017/0370	 04650263	
		010	01260270	01260270 HGA AUTH	01260270 HGA AUTH	01260270 HGA AUTH	01260270 HGA AUTH	04020203	'
	Annon'-				CD Ca	admium			
AC	Arsenic Chromium					opper			
AS CR	Lead					ercury			

JOB FILE: 90929

DATE: 14 MAR /

COLUMN		ESCRIPTION: GREE ESERVATIVE:	N BAY - OLIN-E	STES		JOB NUMBER: 0054PD-92310183 TYPE OF SAMPLE: SEDIMENT			RECEIPT DATE: 21 A COMPLETION DATE: 14 H	
NG/KG		COLUMN	1	2	3	4.	5	6		
DOSS GREEN BAY CONC 3.50 0.879 48.2 53.7 64.6 1.52 1.52 1.50 0.879 1.50 0.879 0.987 0.879 0.987 0.879 0.987 0.879 0.987 0.		ANALYTE	2	4	5	6	7	.8		
1.52 1.52 1.52 1.52 1.52 1.52 1.52 1.52 1.52 1.55 1.52 1.55 1.52 1.55 1.52 1.55		MG/KG	AS	CD	CR	CU.	PB	HG.		
1505-2 8/10/00 OVERFLOW DUPL DID DI260270 DUPL DID DI260270 DI2602	AMP #	DESCRIPTION								
OVERFLOW DUPL OID 01260270 01260270 01260270 01260270 04650263 0465	0935			0.879	48.2	53.7	64.6	1.52	!	
OID 01260270 01260270 01260270 01260270 01260270 01260270 04650263			,,	!	!	ļ	1	-	ļ	
HGA AUTH HGA AUTH HGA AUTH HGA AUTH HGA AUTH		OVERFLOW) 0 04260270	1 01240270	01240270	1 01360370	1 01480343	1	
CONC CONC			010 0120021		•		•	04030203	1	
1525-2 8/10/00 XREC OVERFLOW OUPL OID 01260270 01260270 01260270 01260270 01260270 01260270 04650263 BO0937 GREEN BAY CONC 3.89 0.937 59.3 52.4 67.0 1.31 1625-2 8/10/00 XREC 90.8 93.8 92.8 83.6 96.0 102.7 OVERFLOW DUPL 3.89 0.937 59.0 52.5 67.8 1.33 OID 01260270 01260270 01260270 01260270 01260270 01260270 04650263 BO0938 GREEN BAY CONC 2.89 0.688 43.7 38.3 48.4 0.870 OVERFLOW OUPL 01D 01260270 012				NUA AUIT	HILDR: NOT	univ volu	nan nosn			
1525-2 8/10/00 XREC OVERFLOW DUPL OID 01260270 01260270 01260270 01260270 01260270 04650263 BO0937 GREEN BAY CONC 3.89 0.937 59.3 52.4 67.0 1.31 1625-2 8/10/00 XREC 90.8 93.8 92.8 83.6 96.0 102.7 OVERFLOW DUPL 3.89 0.937 59.0 52.5 67.8 1.33 OID 01260270 01260270 01260270 01260270 01260270 01260270 01260270 04650263 BO0938 GREEN BAY CONC 2.89 0.688 43.7 38.3 48.4 0.870 OVERFLOW OUPL OID 01260270 01260270 01260270 01260270 01260270 04650263 BO0939 GREEN BAY FEED CONC 3.29 0.738 44.3 46.5 50.8 1.11 BO0939 GREEN BAY FEED CONC 3.29 0.738 44.3 46.5 50.8 1.11 BO0939 GREEN BAY FEED CONC 3.29 0.738 44.3 46.5 50.8 1.11 BO0939 GREEN BAY FEED CONC 0.1260270 04650263 0.0000000000000000000000000000000000	0936	GREEN BAY	CONC 3.09	0.727	42.8	42.6	54.3	1.30	Ì	
01D 01260270 01260270 01260270 01260270 01260270 01260270 04650263 090937 GREEN BAY CONC 3.89 0.937 59.3 52.4 67.0 1.31 1625-2 8/10/00 7REC 90.8 93.8 92.8 83.6 94.0 102.7 0VERFLOW DUPL 3.89 0.937 59.0 52.5 67.8 1.33 01D 01260270 01260270 01260270 01260270 01260270 01260270 04650263 000		1525-2 8/10/00	XREC		j	i	i	i	i	
HGA AUTH HGA AUTH HGA AUTH HGA AUTH HGA AUTH HGA AUTH HGA AUTH HGA AUTH HGA AUTH HG		· ·	DUPL		ï	i	İ	i	î	
90937 GREEN BAY CONC 3.89 0.937 59.3 52.4 67.0 1.31 1625-2 8/10/00			OID 0126027	0 01260270	01260270	01260270	01260270	04650263	Ì	
1625-2 8/10/00				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH			
OVERFLOW DUPL 3.89 0.937 59.0 52.5 67.8 1.33 OLD 01260270 01260270 01260270 01260270 01260270 01260270 04650263 RGA AUTH HGA AUT	0937	GREEN BAY	CONC 3.89	0.937	59.3	52.4	67.0	1,31	1	
OID 01260270 01260270 01260270 01260270 01260270 01260270 04650263 HGA AUTH HGA AUTH HGA AUTH HGA AUTH HGA AUTH OID 01260270 01260270 01260270 01260270 01260270 01260270 04650263 FOOSS GREEN BAY FEED CONC 3.29 0.738 44.3 46.5 50.8 1.11 OID 01260270 04650263 OFFI CONC 3.29 0.738 44.3 46.5 50.8 1.11 OID 01260270 01260270 01260270 01260270 01260270 04650263 HGA AUTH HGA AUTH HGA AUTH HGA AUTH HGA AUTH HGA AUTH OID 01260270 01260270 01260270 01260270 04650263 OFFI CONC 2.70 0.580 37.7 38.2 41.6 1.00 OFFI CONC 2.70 0.580 37.7 38.2 41.6 1.00 OFFI CONC 2.70 01260270 01260270 01260270 01260270 04650263		1625-2 8/10/00	XREC 90.8	93.8	92.8	83.6	96.0	102.7	- 1	
HGA AUTH HGA AUTH		OVERFLOW	DUPL 3.89	0.937	59.0	52.5	67.8	1.33	- 1	
90938 GREEN BAY CONC 2.89 0.688 43.7 38.3 48.4 0.870 1715-2 8/10/00 XREC 01D 01260270 01260270 01260270 01260270 01260270 04650263 HGA AUTH HGA AUTH HGA AUTH HGA AUTH 01D 01260270 01260270 01260270 01260270 01260270 01260270 01D 01260270 01260270 01260270 01260270 01260270 01260270 010D 01260270 01260270 01260270 01260270 01260270 01260270 010D 01260270 01260270 01260270 01260270 01260270 01260270 010D 01260270 012602			OID 0126027	0 01260270	01260270		,	04650263		
1715-2 8/10/00 XREC				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH	•		
OVÉRFLOW OUPL OLD 01260270 012	0938	GREEN BAY	CONC 2.89	0.688	43.7	38.3	48.4	0.870	- 1	
OID 01260270 01260270 01260270 01260270 01260270 01260270 04650263 HGA AUTH HGA AUTH HGA AUTH HGA AUTH HGA AUTH 1400-2 8/10/00 XREC		1715-2 8/10/00	X REC	1	ĺ	j i	Ì	İ	1	
HGA AUTH HGA AUTH HGA AUTH HGA AUTH 90939 GREEN BAY FEED CONC 3.29 0.738 44.3 46.5 50.8 1.11 1400-2 8/10/00 %REC		OVERFLOW	OUPL	1	İ	j	<u> </u>	1	1	
90939 GREEN BAY FEED CONC 3.29 0.738 44.3 46.5 50.8 1.11 1400-2 8/10/00 XREC			OID 0126027	0 01260270	01260270	01260270	01260270	04650263	- 1	
1400-2 8/10/00 %REC DUPL 01D 01260270 01260270 01260270 01260270 01260270 04650263 HGA AUTH H				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH			
DUPL 01D 01260270 01260270 01260270 01260270 01260270 01260270 04650263	0939	GREEN BAY FEED	CONC 3.29	0.738	44.3	46.5	50.8	1.11	1	
90940 GREEN BAY FEED CONC 2.70 0.580 37.7 38.2 41.6 1.00 1505-2 8/10/00 XREC 0.000 0.000 0.000 0.000 0.000 0.000 0.0000 0.0000 0.000 0.000 0.000 0.0000 0.0000 0.000 0.000 0.0000 0.00000 0.00000 0.000 0.00000 0.00000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.0000000 0.000000 0.000000 0.000000 0.0000000000		1400-2 8/10/00	%REC	j	į į	1	1	1	ĺ	
HGA AUTH HGA AUTH HGA AUTH HGA AUTH 90940 GREEN BAY FEED CONC 2.70 0.580 37.7 38.2 41.6 1.00 1505-2-8/10/00 %REC 01D 01260270 01260270 01260270 01260270 01260270 01260270 04650263			DUPL	1	· 1	Ì	1	1	- 1	
90940 GREEN BAY FEED CONC 2.70 0.580 37.7 38.2 41.6 1.00 1505-2 8/10/00 XREC			OID 0126027	0 01260270	01260270	01260270	01260270	04650263		
1505-2 8/10/00 XREC				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH			
1505-2 8/10/00 XREC	0940	GREEN BAY FEED	CONC 2.70	0.580	37.7	38.2	41.6	1.00	- 1	
OID 01260270 01260270 01260270 01260270 01260270 04650263			XREC	1	Ì	İ	1	1	ĺ	
			DUPL		1	1	1	1	j	
NGA AUTH HGA AUTH HGA AUTH HGA AUTH			010 0126027	0 01260270	01260270	01260270	01260270	04650263	T.	
				HGA AUTH	HGA AUTH	HGA AUTH	HTUA ADH			
AS Ársenic CD Gadmíum	s	Arsenic			CD C	admīum				
CR Chromium CU Copper	R	Chromium			cu c	copper				

CHEM. PRESERVATIVE: COLUMN		ESCRIPTION: GREE	N BAY	- OLIN-ESTES			UMBER: 0054PD-9			21 AL
AMALYTE	GREM. PR	(ESERVATIVE:				TIPE UP S	AMPLE: SEDIMENT	LOP	PLETION DATE:	14 145
NG/KG							•			
DESCRIPTION DESCRIPTION DESCRIPTION DESC					· ·	=		•	_	
		MG/XG	• • • • •	AS	CD	CR	CU	PB	HG	
1525-2 8/10/00 15260270 1012602	SAMP #	DESCRIPTION								
DUPL O1D 01260270	0941	GREEN BAY FEED	CONC	2.30	0.560	31.7	34.6	40.6	0.880	- 1
010 01260270 01260270 01260270 01260270 01260270 01260270 04650263 070942 GREEN BAY FEED CONC 2.39 0.599 36.9 33.7 46.4 0.836 070942 O1D 01260270 012		1525-2 8/10/00	XREC		i	ĺ	j	i	i	i
HGA AUTH			DUPL		j	i	i	i	i	i
Corr Corr			CID	01260270	01260270	01260270	01260270	01260270	04650263	i
1625-2 8/10/00					HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
1625-2 8/10/00	90942	GREEN BAY FEED	CONC	2.39	0.599	36.9	33.7	46.4	0.836	1
01D 01260270 01260270 01260270 01260270 01260270 04650263 09943 GREEN BAY FEED CONC 2.50 0.509 36.0 31.4 39.7 0.640 01D 01260270 0126		1625-2 8/10/00	%REC		i	i	i	i	i	i
HGA AUTH HGA AUTH HGA AUTH HGA AUTH HGA AUTH			DUPL		i	i	j	i	i	i
REC DUPL OLD 01260270 01260270			OID	01260270	01260270	01260270	01260270	01260270	04650263	j
1715-2 8/10/00					HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
DUPL OID 01260270 01260270 01260270 01260270 01260270 04650263 BL#01 METHOD BLANK 01 CONC <0.200 <0.020 <0.100 <0.100 <0.100 <0.100 <0.040 REC DUPL OID 01260270 01260270 01260270 01260270 01260270 04650263 BL#02 LCS 01 CONC 9.18	20943	GREEN BAY FEED	CONC	2.50	0.509	36.0	31.4	1 39.7	0.640	1
DID 01260270 01260270 01260270 01260270 01260270 04650263					i	i	i	i	i	i
HGA AUTH HGA AUTH HGA AUTH HGA AUTH HGA AUTH HETHOD BLANK 01 CONC <0.200 <0.020 <0.100 <0.100 <0.100 <0.100 <0.040 REC DUPL OID 01260270 01260270 01260270 01260270 01260270 01260270 04650263 HGA AUTH HGA A			DUPL		i	i	i	i	j	i
BL#01 METHOD BLANK 01 CONC <0.200 <0.020 <0.100 <0.100 <0.100 <0.100 <0.040 REC DUPL OID 01260270 01260270 01260270 01260270 01260270 01260270 04650263 BL#02 LCS 01 CONC 9.18 4.80 21.5 19.7 10.9 0.068 REC 91.8 96.0 107.5 98.5 109.0 90.7 DUPL OID 01260270 01260270 01260270 01260270 01260270 04650263 HGA AUTH H			CID	01260270	01260270	01260270	01260270	01260270	04650263	ĺ
MAREC DUPL DID D1260270					HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
DUPL OID 01260270 01260270 01260270 01260270 01260270 04650263 04	BL#01	METHOD BLANK 01	CONC	<0.200	<0.020	<0.100	<0.100	<0.100	<0.040	1
OID 01260270 01260270 01260270 01260270 01260270 04650263 HGA AUTH HGA AUTH HGA AUTH HGA AUTH HGA AUTH OID 01260270 04650263 HGA AUTH HGA AUTH HGA AUTH HGA AUTH OID 01260270 01260270 01260270 01260270 01260270 01260270 04650263 HGA AUTH HGA AUTH HGA AUTH HGA AUTH HGA AUTH HGA AUTH OID 01260270			%REC		İ	i	i	İ	i	- İ
HGA AUTH HGA AUTH HGA AUTH HGA AUTH LCS 01 CONC 9.18 4.80 21.5 19.7 10.9 0.068 XREC 91.8 96.0 107.5 98.5 109.0 90.7 DUPL OID 01260270 01260270 01260270 01260270 01260270 04650263 HGA AUTH HGA AUTH HGA AUTH HGA AUTH HGA AUTH SL#03 EXTERNAL QC 01 CONC 81.5 36.7 19.3 94.8 1170 0.055 XREC 91.7 DUPL			DUPL		1	1		1	1	- İ
BL#02 LCS 01 CONC 9.18 4.80 21.5 19.7 10.9 0.068 21.5			010	01260270	01250270	01260270	01260270	01260270	04650263	1
XREC 91.8 96.0 107.5 98.5 109.0 90.7 DUPL 01D 01260270 01260270 01260270 01260270 01260270 04650263 HGA AUTH HGA AUTH HGA AUTH HGA AUTH HGA AUTH HGA AUTH HGA AUTH HGA AUTH XL#03 EXTERNAL QC 01 CONC 81.5 36.7 19.3 94.8 1170 0.055 XREC 91.7 DUPL					HTUA ADH	HGA AUTH	HGA AUTH	HGA AUTH		
DUPL 01D 01260270 01260270 01260270 01260270 01260270 01260270 04650263 04650260 0465020 0465020 0465020 0465020 0465020 0465020 0465000 0465000 0465000 0465000 04650000 04650000 0465	8L#02	LCS 01	CONC	9.18	4.80	21.5	19.7	10.9	0.068	1
OID 01260270 01260270 01260270 01260270 01260270 04650263 HGA AUTH HGA AUT				91.8	96.0	107.5	98.5	109.0	90.7	ļ
HGA AUTH HGA AUTH HGA AUTH HGA AUTH 3L#03 EXTERNAL QC 01 CONC 81.5 36.7 19.3 94.8 1170 0.055 %REC 91.7 DUPL				040/0070	012/0270	1 012/0270	042/0270		1 0//503/7	
3L#03 EXTERNAL QC 01 CONC 81.5 36.7 19.3 94.8 1170 0.055 2.5			CID	01260270	•	•	•	•	1 04050203	ı
%REC 91.7					HGA AUTH	NGA AUCH	NGA AUTH	HGA AUTH		
DUPL	L#03	EXTERNAL QC 01	CONC	81.5	36.7	19.3	94.8	1170	0.055	1
			%REC		j	1	İ	1	91.7	1
010 01260270 01260270 01260270 01260270 01260270 04650263			DUPL		1	1	1	1	1	1
			010	01260270	•	,	•	•	04650263	-
HGA AUTH HGA AUTH HGA AUTH					HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
IS Anseniic CD Cadmilum		Chromium								
	-B	Lead				HG Me				

DATE: 14 MAR 6

	ESCRIPTION: GREE ESERVATIVE:	N BAY	- OLIN-ESTES			NUMBER: 00 SAMPLE: SE	54PD-92310183 DIMENT	RECEIPT DATE: COMPLETION DATE:	
	COLUMN		7	8	9	10	11	12	•
	ANALYTE		9	.10	:11	13	25	30	
	MG/KG		NI .	SE	AG	ZN	BA	FE	
SAMP #	DESCRIPTION								F
90929	GREEN BAY	CONC	18.7	0.600	0.400	1115	76.1	16800	1
	1400-1 8/10/00	ZREC	94.4	84.4	96.8	94.0	101.6	114.0	. 1
	OVERFLOW	DUPL	18.3	0.600	0.400	1 115	75.6	16900	i
		OID	01260270	01260270	01260270	01260	270 01260270	01230271	ĺ
			HGA AUTH		HGA AUTH	• .	•		•
90930	GREEN BAY 1505-1 8/10/00 GVERFLOW	CONC XREC	21.3	0.799	0.699	125	90.0	21100 	
		OID	01260270 HGA AUTH	01260270	01260270 HGA AUTH	01260	270 01260270	01230271	i
90931	GREEN BAY 1525-1 8/10/00 OVERFLOW	CONC ZREC DUPL	15.5	0.498	0.399	94.6 	60.7	14700]
		OID	01260270 HGA AUTH	01260270	01260270 HGA AUTH	01260	270 01260270	01230271	İ
90932	GREEN BAY 1625-1 8/10/00	CONC	19.9	0.700	0.500	132	88.6	18200 	
	OVERFLOW	DUPL		- '	i	i	i	ì	i i
	OVERI EUN	OLD	01260270 HGA AUTH	01260270	01260270 HGA AUTH	01260	270 01260270	01230271	j
90933	GREEN BAY	CONC	20.3	0.600	0.500	125	84.0	18900	!
	1715-1 8/10/00	XREC		1	1		!		1.
	OVERFLOW	DUPL		040/0070	0.00000000	1 04040	070 0434537	01230271	- 1
		010	01260270 HGA AUTH	01260270	01260270 HGA AUTH	01260	270 01260270	U.] VIZSUZYI	1
90934	GREN BAY	CONC	20.7	0.800	0.500	124	85.9	20400	1
	1400-2 8/10/00	%REC		1	1	I	4	1	1
	DVERFLOW	DUPL				1	1	1	1
		OID	01260270	01260270	01260270	01260	270 01260270	0 01230271	ı
			HGA AUTH		HGA AUTH				
NI	Nickel				SE	Selenium			
AG	Silver				ZN	Zinc			
BA	Barium				*FE	liron			

DATE: 14 MAR L JOB FILE: 90929 JOB DESCRIPTION: GREEN BAY - OLIN-ESTES JOB NUMBER: 0054PD-92310183 RECEIPT DATE: 21 AUG (TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 14 MAR (CHEM. PRESERVATIVE: 10 12 COLUMN..... 7 11 13 25 30 ANALYTE..... 9 8A FE SE AG ZN MG/KG..... N1 SAMP # DESCRIPTION 80.2 17100 1 0.500 122 CONC 19.9 0.699 90935 GREEN BAY %REC 1505-2 8/10/00 OVERFLOW DUPL 01260270 01230271 010 01260270 01260270 01260270 01260270 HGA AUTH HGA AUTH [71.0 17300 0.498 1 103 90936 GREEN BAY CONC 17.1 0.498 1525-2 8/10/00 %REC OVERFLOW DUPL 01230271 01260270 01260270 OID 01260270 01260270 01260270 HGA AUTH HGA AUTH 0.797 0.598 134 90.0 19800 CONC 20.4 90937 GREEN BAY 91.6 94.0 95.4 1625-2 8/10/00 %REC 90.8 83.0 1 19200 0.797 0.598 130 89.5 DUPL 20.5 OVERFLOW 01260270 01260270 01260270 01260270 01260270 01230271 010 HGA AUTH HGA AUTH 67.0 15800 94.8 1 0.498 0.698 90938 GREEN BAY CONC 16.0 ZREC 1715-2 8/10/00 OVERFLOW DUPL 01230271 01260270 01260270 DID 01260270 01260270 01260270 HGA AUTH HGA AUTH 0.499 107 77.4 1 19300 0.599 90939 GREEN BAY FEED CONC 18.6 1400-2 8/10/00 %REC DUPL 01260270 01260270 01260270 01260270 01230271 01260270 OID HGA AUTH HGA AUTH 61.9 15100 80.5 8,400 0.600 90940 GREEN BAY FEED CONC 15.2 XREC 1505-2 8/10/00 DUPL 01230271 01260270 01260270 01260270 1 01260270 OID 01260270 HGA AUTH HGA AUTH SΕ Selenium Nickel NT Zinc ZN Silver 8arium FE Iron

Inb E11 E 00020

DATE: 14 MAR

	DESCRIPTION: GREE DESERVATIVE:	N BAY	- OLIN-ESTES				: 0054PD-92 : SEDIMENT	2310183.	RECEIPT DATE: COMPLETION DATE:	
	COLUMN	*****	7	8	9	,	10	11	12	
	ANALYTE		9	10	11		13	25	30	
	MG/KG		NI	SE	AG	2	ZN	BA	FE.	
SAMP #	DESCRIPTION									
90941	GREEN BAY FEED 1525-2 8/10/00	CONC XREC DUPL	13.9	0.400	0.300	7 -	77.8	50.6	12600;	
		OID	01260270	1 01260270	01260270		1260270	01260270	01230271	
		<u></u>	NGA AUTH	1 Airearia	HGA AUTH			1 0.2002.0	£ 01250E11	'
90942	GREEN BAY FEED 1625-2 8/10/00	XREC	13.6	0.399	0.399	[£	34.5	57.1	12500	Ĺ
		DUPL						25	125122	Į
		OID	01260270 NGA AUTH	01260270	01260270 HGA AUTH		01260270	01260270	01230271	-
90943	GREEN BAY FEED	CONC	13.7	1 0.400	1 0.300	Fiz	76.3 [:]	56.0	l 13500	i
	1715-2 8/10/00	ZREC				İ		į		į
		OID	01260270	01260270	01260270	i i	1260270	01260270	01230271	i
			HGA AUTH		HGA AUTH	•	•		,	•
BL#01	METHOD BLANK 01	CONC %REC DUPL	<0,100	<0.200 	<0.100		<1.00	<0.100 	<1.50 	}
		OID	01260270 HGA AUTH	01260270	01260270 HGA AUTH		1260270	01260270	01230271	i
BL#02	LCS 01	CONC	20.3	4.00	4.80	[4	42.5	50.6	110	Í
		XREC DUPL	101.5	79.8	95.0		35.0	101.2	110.0 	
		OID	01260270	01260270	01260270	i j	01260270	01260270	01230271	i
			HGA AUTH	:	HGA AUTH					•
BL#03	EXTERNAL QC 01		15.5	1.39	4.48	Į	286	194	19600	ļ
		XREC		1					ļ }	·
		OID	01260270	01260270	01260270	i	01260270	01260270	01230271	i
		.,	HGA AUTH	•; •	HGA AUT			,	,	,
NI	Nickel				SE	Seleniu	n			
AG	Silver				ZN	Zinc				
BA	Barium				FE.	Iron				

**************************** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 6 OF

JOB FILE: 90929 DATE: 14 MAR (JOB NUMBER: 0054PD-92310183 RECEIPT DATE: 21 AUG (JOB DESCRIPTION: GREEN BAY - OLIN-ESTES TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 14 MAR I CHEM. PRESERVATIVE: 15 14 COLUMN....... 13 ANALYTE..... 31 33 HO MG/KG..... MG SAMP # DESCRIPTION 0.400 410 90929 GREEN BAY CONC 20300 1400-1 8/10/00 %REC 94.8 99.8 106.2 413 0.400 **DUPL 20300** OVERFLOW DID 01230271 01230271 01230270 19000 433 0.499 CONC 90930 GREEN BAY 1505-1 8/10/00 XREC OVERFLOW DUPL 01230270 OID 01230271 01230271 90931 GREEN BAY CONC 17800 304 0.299 1525-1 8/10/00 XREC OVERFLOW DUPL OID 01230271 01230271 01230270 CONC 16100 1 359 0.400 90932 GREEN BAY 1625-1 8/10/00 XREC OVERFLOW DUPL 01230270 010 01230271 [01230271 90933 GREEN BAY CONC 17000 372 0.400 ZREC 1715-1 8/10/00 OVERFLOW DUPL OID 01230271 01230271 01230270 0.500 CONC 20000 90934 GREN BAY 1400-2 8/10/00 XREC OVERFLOW DUPL 01230270 010 01230271 01230271 Magnesium MG Molybdenum

	DESCRIPTION: GRE RESERVATIVE:	EN BÂY	- OLIN-ESTES			NUMBER: SAMPLE:	0054PD-92310183 SEDIMENT	RECEIPT DATE: COMPLETION DATE:	21 AUG 14 MAR
	COLUMN	4 4 4 5		14	15				
	ANALYTE			32	33				
	MG/KG	*****	MG	: MR	МО				
AMP #	DESCRIPTION								
0935	GREEN BAY	CONC	18900	386	1 0.400	1			
	1505-2 8/10/00	%REC	10,700	1 200	1 0.400	, j			
	OVERFLOW	DUPL			!	!			
	OVERTEUN	OID	01230271	Lorazona	i hennama	!			
		· OID	01230271	01230271	01230270	1			
0936	GREEN BAY	CONC	17900	352	0.299	r			
	1525-2 8/10/00	XREC		i	1	i			
	OVERFLOW	DUPL		i	ì	i			
		OID	01230271	01230271	01230270	i			
	•								
0937	GREEN BAY	CONC	16100	356	0.398	1			
	1625-2 8/10/00	XREC.	92.0	96.8	103.8	į.			
	OVERFLOW	DUPL	15600	344	0.398	i			
		010	01230271	01230271	01230270	i.			
60.40°	*****			•	-				
0938	GREEN BAY	CONC	14300	272	0.399	4.			
	1715-2 8/10/00	XREC		!	ľ	- 1			
	OVERFLOW	DUPL			1.	1			
		OID	01230271	01230271	01230270	J.			
0939	GREEN BAY FEED	CONC	18900	376	1.0.400				
	1400-2 8/10/00	XREC	103,00	1 3/6	0.499	!			
	1400 2 0/ 10/00	DUPL			!	ļ			
		CID	01230271	01230271	01230270]			
				i aleboel I	1 01230270	ı	•	•	
940	GREEN BAY FEED	CONC	16100	270	0.400	ı			
	1505-2 8/10/00	%REC		1	i	i			
		DUPL	•	i	i	i			
		DID	01230271	01230271	01230270	i			
			1						
í	Magnesium				MN Ma	nganese			
j.	Molybdenum								

	DESCRIPTION: GREE	N BAY	- OLIN-ESTES				0054PD-923101		RECEIPT D		
CHEM. P	RESERVATIVE:				TYPE (F SAMPLE:	SEDIMENT	C	OMPLETION D	ATE:	14 MA
	COLUMN			14	15						
	ANALYTE MG/KG			32 Mn	33 H0						
SAMP #	DESCRIPTION										
			42000	1.040							
90941	GREEN BAY FEED 1525-2 8/10/00	ZREC	15900	260	0.300	!					
	1363 6 0, 10,00	DUPL		i	i	i					
		010	01230271	01230271	01230270	i					
90942	GREEN BAY FEED	%REC	12400	253	0.299	į					
	1625-2 8/10/00	DUPL		1	1	- 1					
		OID	01230271	01230271	01230270	i					
90943	GREEN BAY FEED		12700	528	0.300	!					
	1715-2 8/10/00	XREC		}		ļ					
		DUPL	01230271	01230271	01230270						
BL#01	METHOD BLANK 01		<10.0	<0.100	<0.100	!					
		XREC		ļ	!	ļ					
		DUPL OID	01230271	01230271	01230270	1					
				•	•	•					
BL#02	LCS 01	CONC	N/A	20.4	N/A						
		XREC		102.0	İ	İ					
		DUPL									
		OID	01230271	01230271	01230270	1					
BL#03	EXTERNAL QC 01	CONC	6670	495	1 0.498	ı					
		%REC		İ	i	i					
		DUPL				1					
		OID	01230271	01230271	01230270	ì					
MG	Magnesium				MÀ	Manganese	•				
MO	Molybdenum										

*****	***********	*****	ENVI RONMENTAL	CHEMISTRY BRAN	CH: - DATA REPORTI	NG SHEET (PAGE	1.0F 3.)	*******	DATE:	
			•			, ,	•			
CHEM. P	DESCRIPTION: GRE RESERVATIVE:	EN BAY	- OLIN-ESTES		JOB N	UMBER: 0054PD-9 AMPLE: SEDIMENT	2310183	RECEIPT	DATE:	21 A
	COLUMN		1	2	3	4				
	ANALYTE.		86	9 5	100	104				
	MĢ/ĶG	*****	100	TVS	O&G	TRPH				
SAMP #	DESCRIPTION							ui-		
90944	GREEN BAY	CONC	37100	1 <4	240	200	4			
	1400-1 8/10/00	*REC		i	88.1	85.8	,			
	OVERFLOW	DUPL		1.		i	i			
		OID	60790249	10150235	55990240	55990242	J			
90945	GREEN BAY	CONC	50300	1	1					
, . ,	1505-1 8/10/00	XREC	20200	\ <4 	310	230	1			
	OVERFLOW	DUPL		İ	ŀ		1	•		
		010	60790249	10150235	55990240	55990242	į	÷ .		
90946	GREEN BAY		42100	<4	450	330	I.			
	1525-1 8/10/00 OVERFLOW	%REC DUPL		.[4 %	1				
		010	60790249	10150235	55990240	55990242	ł I			
	4.			,						
90947	GREEN BAY		50500	<4	530	420	ļ.		شا پ	*,
	1625-1 8/10/00 OVERFLOW	XREC			4	ļ	4			
			60790249	10150235	55990240	55990242	1			
						1 33770242	4			
90948	GREEN BAY	CONC	39400	. <4	j 570	450	1			
	1715-1 8/10/00	ZREC			1 270	1,950	1			
	OVERFLOW	DUPL	20700040	1	İ	j	i		-	
	i e	OID	60790249	10150235	55990240	55990242	1			
90949	GREEN BAY	CONC	51200	<4	360	Lago:	ċ			٠, ١
	1400-1 8/10/00	ZREC		"	1 300	1 580	1	•		
	OVERFLOW	DUPL		ţ.	ĺ		i			
		010	60790249	10150235	55990240	55990242	F			
'0C	Total Organic C	ərbon			TVS Tota	al Volatile Solid				
&G	Oil and Grease				TRPH Tota	il Recoverable Pe	is troleim Hvde	ocarboos		
							orean riyar	wai DUNS		

109 ETF	.E: 91/944 .							DATE: 07
*****	*****	*****	ENVIRONMENTAL	CHEMISTRY BRANCH	- DATA REPORTIN	NG SHEET (PAGE 2	OF 3.3 ********	
						,,,,,,		
	DESCRIPTION: GR RESERVATIVE:	EEN BAY	- OLIN-ESTES	•		UMBER: 0054PD-92310 UMPLE: SEDIMENT	183 RECEIPT	T'DATE: 21 /
	COLUMN			2	3	4		•
	MG/KG			9 5 TVS	100 0 &G	104 TRPH		
SAMP #	DESCRIPTION							
90950	GREEN BAY						•	
30730	1505-2 8/10/00	%REC	52500	<4	520	410		
	OVERFLOW	DUPL		ì	1			
		010	60790249	10150235	55990240	55990242		
90951	COCCU DAN		10445					
90951	GREEN BAY 1525-2 8/10/00	#REC	48600	<4	420	320		•
	OVERFLOW	DUPL		1	1	!	•	
		OID	60790249	10150235	55990240	55990242	-	
90952	Angel Bay							
90932	GREEN BAY 1625-2 8/10/00	XREC	46300	<4	590	460		
	OVERFLOW	DUPL			`			
			60790249	10150235	55990240	55990242		
90953	GREEN BAY	CONC	46800	<4	1 740	1		
	1715-2 8/10/00	%REC	40000	1	360	280		
	OVERFLOW	DUPL		j '	i		-	
		010	60790249	10150235	55990240	55990242		
90954	GREEN BAY FEED	CONC	43000	! <4	1.7/0	1.70		
	1400-2 8/10/00	XREC	13000) 340 1	260		
		DUPL		i	i			
		010	60790249	10150235	55990240	55990242		
90955	GREEN BAY FEED	CONC	20400	<4	250	180		•
	1505-2 8/10/00				1	1 100		
		DUPL OID	60790249	10150235	 55990240	55990242		
					•	,		
TOC	Total Organic C	arbon			TVS Total	l Volatile Solids		
0&G	Oil and Grease				TRPH Total	l Recoverable Petrol	eum Hydrocarbons	
							-	

INTERNAL QC DATA

Jobfile Number: 90944
Project: GREEN BAY - OLIN-ESTES
Account Number: 0054PD-92310183
Date Received: 21 AUG 00

			Analyte		% SDUPL	RPD	OID
90944	90944 90944	100	O&G	88.1 85.8	93.7 91.6	6.2 6.5	55990240 55990242

Page 1

END OF REPORT

SU-12/14/10

DATE: 18 DEC

ANAL' MG/KI SAMP # DESCRIPTION 92099 GB-METPRO LINDER-1 92100 GB/METPRO LINDER-2 92101 GB/METPRO OVER-1 92102 GB/METPRO OVER-2	CON XRE PUP OID	. 137 . PCB-1016 C <7.96 C L 54920341 C <8.18 C <8.29 C <8.29	2 138 PCB-1221 <7.96 54920341 54920341	3 139 PCB-1232 <7.96 54920341 <8.18 54920341	140 PCB-1242 1657 54920341	5 141 PCB-1248 <7.96 54920341 54920341	6 142 PCB-1254 <7.96
92100 GB/METPRO UNDER-1 92101 GB/METPRO OVER-1 92102 GB/METPRO OVER-2	COM XRE DUP OLD XRE DUP OLD COM XRE DUP DUP	54920341 C <8.18 C 54920341 C <8.29	54920341 <8.18 54920341 <8.29	54920341 <8.18 	54920341 1634 54920341	<7.96 54920341 <8.18 54920341	
92100 GB/METPRO UNDER-2 92101 GB/METPRO OVER-1 92102 GB/METPRO OVER-2	XRE DUP OID CONIN XRE DUP OID CONIN XRE DUP	54920341 C <8.18 C 54920341 C <8.29	54920341 <8.18 54920341 <8.29	54920341 <8.18 	54920341 1634 54920341	\$ 54920341 \$ 48.18 \$ 54920341	
UNDER-2 92101 GB/METPRO OVER-1 92102 GB/METPRO OVER-2	CONI XREI DUPI OID CONI XREI DUPI	C <8.18 C L 54920341 C <8.29 C	<8.18 54920341	<8.18 54920341	1634 54920341	<8.18 54920341	<8.18
UNDER-2 92101 GB/METPRO OVER-1 92102 GB/METPRO OVER-2	XREI DUPI OTD CONG XREI DUPI	C 54920341 C <8.29 C	54920341	 54920341	54920341	54920341	54920341
OVER-1 92102 GB/METPRO OVER-2	CON XREI DUPI	C <8.29 C	(<8.29 	•			•
OVER-1 92102 ĠB/METPRO OVER-2	%REG DUP!	C L	j	<8.29 	8812 	<8.29	<8.29
92102 ĠB/METPRÓ ÖVER-2	OLD	54920341	54920341	•			1
OVER-2			• • • • • • • •	54920341	54920341	54920341	54920341
3L#01 METHOD BLAN	CON XREG DUP!	C	<8.32 	<8.32 	8101	<8.32 	<8.32 -
BL#01 METHOD BLAN	OID		54920341	54920341	54920341	54920341	54920341
	K 01 CONC %REC	:) <8.3	<8.3 	<8.3 	<8,3	<8.3
	010	54920341	54920341	54920341	54920341	54920341	54920341
3L#02 LCS 01	CONC XREC DUPL		N/A	N/Ä	N/A	N/A	T N/A
	010	54920341	54920341	54920341	54920341	54920341	54920341
PC8-1016 PC8-1016 PC8-1232 PC8-1232				PCB-1221 PCB			

*****	*****	-****	ENVIRONMENTAL	CHEMISTRY BRANCH	DATA REPORTING SHEET (PAGE 2 OF 2')
	DESCRIPTION: GRE RESERVATIVE:	EN BAY	MOBILE HYDRO	CYCLONE-ESTES-OL (N	JOB NUMBER: NEED PR&C RECEIPT DATE: 01 NO TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 18 DI
	COLUMN ANALYTE MG/KG			8 145 Tolxyl-s	9 146 DCL8P
SAMP #	DESCRIPTION			141/12 3	octor -
92099	GB-METPRO UNDER-1	CONC %REC DUPL 010	94.9 54920341	72.1%	80_1%
					7-97-203-1
92100	GB/METPRO UNDER-2	CONC XREC DUPL	87.2	72.3x	78.6%
		OID	54920341	54920341	54920341
92101	GB/HETPRO OVER-†	CONC %REC DUPL	526	69.4%	78.8%
	*	010	54920341	54920341	54920341
92102	GB/METPRO OVER-2	CONC XREC DUPL	490	66.5 x	73.9%
		010	54920341	54920341	54920341
BL#01	METHOD BLANK 01	CONC	<8.3	73.0%	125%
		DUPL	54920341	54920341	54920341 .
BL#02	LCS 01	CONC %REC		87.9% 85.8	78.4% 87.2
		DUPL	1.63 54920341	54920341	54920341
PC8-1260 DCLBP	PC8-1260 Decachlorobipher	nyl(Sur	rogate (40-14	0 WS))	clxYL-S 2,4,5,6-Tetrachloro-m-xylene(Surrogate(40-140 WS
					-

INTERNAL QC DATA

Jobfile Number: 92099
Project: GREEN BAY MOBILE HYDROCYCLONE-ESTES-OLIN
Account Number: NEED PR&C
Date Received: 01 NOV 00

Job#	Sample		Analyte		% SDUPL	RPD	OID
92099 92099	BL#02 BL#02	137	PCB-1016 PCB-1260	102.0	97.6 98.0	4.4	54920341 54920341

Page 1

END OF REPORT

				PHENISIKI DEMANUR '	DATA REPORTING SHEET (PAGE 1 OF 2) **********************************
OHEH 1	DESCRIPTION: GREE RESERVATIVE:	N BAY M	OBILE HYDROC	YCLONE-ESTES-OLIN	TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 11 DE
	COLUMN		1	2	3
	ANALYTE			100 0 &G	104 Trph
		••••	, 00		
SAMP #	DESCRIPTION				
92103	GB/METPRO	CONC	14800	210	120
	UNDER-1	%REC DUPL	10400	i [
			60040311	55990346	55990346
mn#c1	an aireann	eoue	8500	200	[110]
92104	GB/METPRO UNDER-2	CONC %REC	5700		"
		DUPL		İ	1
		010	60040311	55990346	55990346
92105	GB/METPRO	CONC	70300	630	390
	OVER-1	%REC		!	
		DUPL D1D	60040311	55990346	55990346
92106	GB/METPRÓ OVER-2	CONC %REC	41000	570	350
	OVER E	DUPL			i j
		OID	60040311	55990346	55990346
BL#01	METHOD BLANK 01	CONC	<100	<35	<35
DE#01	The state of the s	%REC		i	
		DUPL OID	60040311	55990346	55990346
BL#02	LCS 01	CONC		878	873
		%REC DUPL	115.0	88.1	87.6
			60040311	55990346	55990346
тос	Total Organic	Carbon			O&G Oil and Grease
			roleum Hydro	carbons	

DATE: 11 DEC 1 RECEIPT DATE: 01 NOV (JOB NUMBER: NEED PR&C JOB DESCRIPTION: GREEN BAY MOBILE HYDROCYCLONE-ESTES-OLIN TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 11 DEC 1 CHEM. PRESERVATIVE: COLUMN...... 1 3. 104 ANALYTE..... 86 100 MG/KG..... TOC TRPH DESCRIPTION SAMP # EXTERNAL OC 01 CONC 245 N/A %REC 108.9 DUPL 55990346 010 60040311 55990346 Oil and Grease 0&G Total Organic Carbon Total Recoverable Petroleum Hydrocarbons TRPH

INTERNAL QC DATA

Jobfile Number: 92103
Project: GREEN BAY MOBILE HYDROCYCLONE-ESTES-OLIN
Account Number: NEED PR&C
Date Received: 01 NOV 00

Job#	Sample	Tst	Analyte	% REC	% SDUPL	RPD	OID
	BL#02 BL#02			88.1 87.6	88.6 87.8	0.6 0.2	55990346 55990346

Page 1 END OF REPORT

CHEM					CH - DATA REPORT	NG SHEET (PAGE	1 OF 6) **	*******	*****
CHEM	OB DESCRIPTION: GR	EEN BAY	MOBILE HYDRO	CYCLONE-ESTES-O	ĹĬŇ JOŚ A	IUMBER: NEED PR&C		RECEIPT DATE:	O1 NOV
	PRESERVATIVE:				TYPE OF S	AMPLE: SEDIMENT	,00	MPLETION DATE:	MAL ST
	COLUMN			2	3	4	5	6	
	ANALYTE.		2 AS	4 CD	5	6,	7	8	
SAMP					CR	CU;	PB	ΫŒ	
9210		CONC	<3.0	0.24 1	13.6	13.4	18.6	0.404	- 1
	UNDER - 1	*REC	101.0	96.4	95.5	99.0	86.0	100.4	i
		DUPL	0.78 J	0.23 1	13.5	13.9	18.9	0.398	i
		άιρ	00001008	00001008 HGA AUTH	HGA AUTH	#GA AUTH	HGA AUTH	04650327	Ì
92108	GB/METPRO	· COUC ·	0.69 J	1 0 70 1					
72 102	UNDER-2	CONC	0.64 1	0.20 1	11.9	13.1	18.4	0.390	Ţ
		DUPL		i	i ·	i	}	1	- {
		OID	00001008	00001008	00001008	00001008	00001008	04650327	1
				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH	1	1
92109	GB/METPRO	CONC	7.1	2.07	112	120	149	4.98	1
	OVER-1	ZREC		ļ	!	ĺ	ì	i	- 1
		DUPL OID	00001008				1	Ī	i
	z#	,0.0	00001508	HGA AUTH	HGA AUTH	00001008 HGA AUTH	HGA AUTH	04650327	- 1
92110	GB/METPRO	CONC	6:8	1.95	1 106	1 444	-14	A	
	OVER-2	XREC		1	.1	116	140	4.34	-
		DUPL		i,	Ï	i	1	4.44	- {
		OID	00001008	00001008	00001008	00001008	00001008	04650332	- i -
				HGA AUTH	HGA AUTH	HGA AUTH	NGA AUTH	•	,
BL#01	METHOD BLANK 01	CONC	<3.0	<0.50	<2.0	[<2.0	1 <2.0	<0.040	
		XREC		4	i	i	1	. 1	- {
		DUPL	Assisse	!	1	j ,	i	1	i
		GID	00001008	00001008	00001008	00001008	00001008	04650332	i
				HGA AUTH	HGA: AUTH	HGA AUTH	HGA AUTH	•	7
BL#02	LCS 01	CONC	9.39	5.15	20.6	20.3	10.5	0.0715	1 3
		XREC	93.9	103.0	103.0	101.5	105.0	95.3	l.
		DUPL	00000000	1		ļ	<u> </u>	i	i
		010	8001000	00001008 HGA_AUTH	00001008	00001008	00001008	04650332	i
,	*			umi uni u	HGA AUTH	HGA AUTH	HGA AUTH		
AS	Arsenic				CD Cade	πium:			
CR' PB	Chromium				cu cop	per			
	Lead				HG Mer	cury.			
						•			

JOE FILE: 92107 DATE: 18 JAI JOB DESCRIPTION: GREEN BAY MOBILE HYDROCYCLONE-ESTES-OLIN JOB NUMBER: NEED PR&C RECEIPT DATE: 01 NOV CHEM. PRESERVATIVE: TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 18 JAN COLUMN...... 1 ANALYTE..... 2 6 MG/KG..... AS CD HG SAMP # DESCRIPTION BL#03 EXTERNAL OC 81 CONC 79.0 33.6 17.6 94.4 952 0.0646 XREC DUPL 010 00001008 00001008 00001008 00001008 00001008 04650332 HGA AUTH HGA AUTH HGA AUTH HGA AUTH Arsenic CD Cadmium CR Chromium CU Copper Lead HG Mercury . 1;

JOB #1LE: 92107 DATE: 18 JAN JOB DESCRIPTION: GREEN BAY MOBILE HYDROCYCLONE-ESTES-OLIN JOB NUMBER: NEED PR&C RECEIPT DATE: 01 NOV CHEM. PRESERVATIVE: TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 18 JAN COLUMN..... 7 8 9 10 12 ANALYTE..... 9 10 11 13 25 30 MG/KG..... NI SE AG ZN BA FE SAMP # DESCRIPTION RC EXTERNAL QC 01 CONC 13.8 BL#03 <4.0 0.59 J 272 172 B 18900 XREC DUPL 01D 00001008 00001008 00001008 00001008 00001008 00001008 HGA AUTH RGA AUTH NI Nickel SE Selenium AG Silver ZN Zinc Barium Iron

JOB FILE: 92107 DATE: 18 JAN JOB DESCRIPTION: GREEN BAY MOBILE HYDROCYCLONE-ESTES-OLIN JOB NUMBER: NEED PRAC RECEIPT DATE: 01 NOV CHEM. PRESERVATIVE: TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 18 JAN 14 ANALYTE..... 32 MG/KG..... MN MO SAMP # DESCRIPTION 92107 GB/METPRO CONC 83.4 <2.0 UNDER-1 *REC 103.0 DUPL 83.3 <2.0 010 00001008 00001008 HGA AUTH 92108 GB/METPRO CONC 78.5 <2.0. UNDER-2 XREC DUPL OID 00001008 00001008 HGA AUTH 92109 GB/METPRO CONC 251 1.11 3 OVER-1 XREC DUPL 00001008 OID 00001008 HGA AUTH 92110 GB/METPRO CONC 243 1.17 J OVER-2 XREC DUPL 010 00001008 00001008 HGA AUTH METHOD BLANK OT CONC 40.80 <2.0 %REC DUPL OID 00001008 00001008 HGA AUTH BL#02 LES 01 CONC 21.2 N/A %REC 106.0 DUPL. GID 00001008 I 00001008 HGA AUTH Manganese Molybdenum

	ì					45. 4°			,
	105 til	E: 92107						DATE:	18 JA
,	.*****	******	**** E	NVIRONMENTAL	CHEMISTRY BRANCH	- DATA REPORTING SHE	EET (PAGE 6 OF	6) ************	*****
	.IOR I	DESCRIPTION: GRE	FW RAY	MORTLE NYADA	CYCLONE-ESTES-OLIN	IAD NIMPER	- NEED PR&C	DECEMPT DATE.	01.1101
		RESERVATIVE:	LIV DAT	HOSTEL BIORD	CICEONE ESTES CEIN	TYPE OF SAMPLE:	SEDIMENT	RECEIPT DATE: COMPLETION DATE:	
		COLUMN ANALYTE MG/XG		32	14 33 HO				
	SAMP #	DESCRIPTION							
	BL#03	EXTERNAL QC 01	CONC ZREC DUPL OID		00001008				
	ми	Manganese				HO Malybder	tum		
						`			
		•							
1878					,	`			
				ι					
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*******	92111 12/Bl	**** E	NVIRONMENTAL CH	EMISTRY BRANCH	- DATA REPORTING	SHEET (PAGE 1	OF 2) ****	****	*******
	SCRIPTION: GREE	N BAY	MOBILE HYDROCYO	LONE-ESTES-OLIN	JOB NUM TYPE OF SAM	BER: NEED PR&C		RECEIPT DATE:	
	COLUMN		137.	2 138	3 139	4 140 PCB-1242	5 141 PEB-1248	6 142 PC8-1254	
	PPB		PCB-1016	PCB-1221	PCB-1232	PCB-1242	P.CB. 1240	, 100 1254	RO
92111	GB/METPRO UNDER 1	CONC %REC	<0.24	<0.24 	<0.24	2.65	<0.24 	<0.24 	.
		DUPL	54920341	54920341	54920341	54900341	54920341	 54920341	
92112	GB/HETPRO OVER 1	ZREC	<0.24	<0.24	<0.24	0.43	<0.24	<0.24	
		DUPL OID	54920341	54920341	54920341	54900341	54920341	54920341	Ì
BL#01	METHOD BLANK OT	CONC	<0.25	\ <0.25	<0.25	<0.25	<0.25	<0.25	ļ -
		OID	54920341	54920341	54920341	54920341.	54920341	54920341	Î
BL#02	LCS 01	*REC], N/A:	∫ N/A-	N/A	N/A] N/A.	1
		DUPL	2.39 54920341	54920341	54920341	54920341	54920341	54920341	1
PCB-1232	PCB-1016 PCB-1232 PCB-1248				PCB-1221 PCB PCB-1242 PCB PCB-1254 PCB	-1242			
				·					
					•	•			
	•								
					•				

DATE: 12 DEC (JOB FILE: 92111 RECEIPT DATE: 01 NOV (JOB DESCRIPTION: GREEN BAY MOBILE HYDROCYCLONE-ESTES-OLIN JOB NUMBER: NEED PR&C COMPLETION DATE: 12 DEC (TYPE OF SAMPLE: WATER CHEM. PRESERVATIVE: 9 COLUMN...... 7 8 145 146 ANALYTE..... 143 TclXYL-S DCLBP PP8..... PC8-1260 SAMP # DESCRIPTION 65.3% 56.5% CONC 0.30 92111 GB/METPRO %REC UNDER 1 DUPL 54920341 OID 54920341 54920341 67.3% 64.0% CONC <0.24 92112 GB/METPRO %REC OVER 1 DUPL 54920341 54920341 CID 54920341 METHOD BLANK 01 CONC <0.25 80.9% BL#01 %REC DUPL 54920341 010 54920341 54920341 79.6% 73.0% CONC 2.19 BL#02 LCS 01 %REC 87.6 71.2% 84.7% DUPL 2.24 54920341 DID 54920341 54920341 TolXYL-S 2,4,5,6-Tetrachloro-m-xylene(Surrogate(40-140 WS PCB-1260 PCB-1260 Decachlorobiphenyl(Surrogate (40-140 WS)) DCLBP

INTERNAL QC DATA

Jobfile Number:

Jobfile Number: 92111
Project: GREEN BAY MOBILE HYDROCYCLONE-ESTES-OLIN
Account Number: NEED PR&C
Date Received: 01 NOV 00 Account Number:

			Analyte		% SDUPL	RPD	OID
92111	BL#02	137	PCB-1016 PCB-1260	96.8	95.6	1.2	54920341 54920341

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END OF REPORT

						TING SHEET (PAGE			
	DESCRIPTION: GREE RESERVATIVE: HNO3		MOBILE HYDROC	CYCLONE-ESTES-OLIN-	JOB TYPE OF	NUMBER: NEED PR&C SAMPLE: WATER		RECEIPT DATE:	
	COLUMN		1	2	3	4	5	6	
	ANALYTE		2	4	5	6	7	8	
	PPM	••••	AS	CD	CR	Cu	РВ	ЯG	
SAMP #	DESCRIPTION								
92113	GB/METPRO	CONC	<0.015	I <0.0025	0.014] 0.022	0.017	0.00023	1
92113	UNDER	XREC	110.0	102.0	101.0	104.0	103.0	103.6	i
	GNOCK	DUPL	0.0041 J	<0.0025	0.014	0.021	0.018	0.00031	1
		OID	00001002	00001002	00001002	00001002	00001002	04650340	İ
				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
92114	GB/METPRO	CONC	<0.015	<0.0025	0.005 J	L 8800.0	0.012	<0.00020	!
	OVER	XREC			!	!			Į
		DUPL	******	1 00001003	00001002	00001002	00001002	04650340	
		010	00001902	00001092 HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH	1 0 10303 10	'
BL#01	METHOD BLANK 01	CONC	<0.015	<0.0025	<0.010	<0.010	<0.010	(0.00020	1
		%REC		i	İ	Ī	1	1	!
		DUPL		1	1	1			!
		OID	00001002	00001002 HGA AUTH	00001002 HGA AUTH) 00001002 HGA AUTH	100001002 HGA AUTH	04650340	1
BL#02	LCS 01	CONC	1.09	0.538	1.04	1.00	1.07	0.000345	1
		%REC	109.0	108.0	104.0	100.0	107.0	92.0	į
		DUPL			1				!
		CID	00001002	00001002 HGA AUTH	HGA AUTH	00001002 HGA AUTH	SOOFDOOD HTUA ADH	04650340	'
BL#03	EXTERNAL GC 01	CONC	N/A	H/A	N/A	1 N/A	N/A	0.00043	1
		%REC			!		1	1	ļ
		DUPL				1 00001000	1 00001003	04650340	I
		OID	00001002	00001002 HGA AUTH	HGA AUTH	00001002 HGA AUTH	00001002 HGA AUTH	04030340	1
AS	Arsenic				CD	Cadmium			
CR	Chromium					Copper			
PB	Lead				HG	Mercury			

DATE: 26 JAN

JOB	FILE	:	.92113

RECEIPT DATE: 01 NOV 1 UOB NUMBER: NEED PR&C JOB DESCRIPTION: GREEN BAY MOBILE HYDROCYCLONE-ESTES-OLIN" COMPLETION DATE: .26 JAN 1 TYPE OF SAMPLE: WATER CHEM. PRESERVATIVE: HNO3 11. 12 9 10 COLUMN...... 7 13 30 11 ANALYTE..... 9 10 FΕ BA PPM..... NI SE AG ZN SAMP # DESCRIPTION 0.0518 1.15 0.040 <0.005 <0.020 92113 GB/METPRO CONC 0.0044 J 105.0 XREC 102.0 105.0 105.0 103.0 104.0 UNDER 0.0518 1.20 0.042 <0.005 DUPL 0.0045 J <0.020 00001002 00001002 00001002 010 00001002 00001002 00001002 HGA AUTH HGA AUTH <0.020 <0.005 0.036 0.0422 0.520 GB/METPRO CONC <0.010 92114 **XREC** OVER DUPL 00001002 00001002 00001002 00001002 00001002 00001002 DID HGA AUTH HGA AUTH <0.0025 | <0.120 <0.010 METHOD BLANK 01 CONC <0.010 < 0.020 <0.005 BL#01 ZREC DUPL 00001002 OID 00001002 00001002 00001002 00001002 00001002 HGA AUTH HGA AUTH 6.31 CONC -1.06 1 1.05 0.204 1.11 1.01 LCS 01 BL#02 101.0 105.0 111.0 102.0 XREC 106.0 105.0 DUPL. 00001002 00001002 00001002 00001002 00001002 OID 00001002 HGA AUTH l N/A N/A N/A N/A EXTERNAL QC 01 CONC N/A | H/A BL#03 %REC DUPL 00001002 00001002 00001002 00001002 01D 00001002 00001002 HGA AUTH HGA AUTH Selenium NI Nickel Zinc 7N AG Silver FΕ Iron BA Barium

DATE: 26 JAN JOB FILE: 92113 JOB DESCRIPTION: GREEN BAY MOBILE HYDROCYCLONE-ESTES-OLIN JOB NUMBER: NEED PR&C : RECEIPT DATE: 01 NOV TYPE OF SAMPLE: WATER COMPLETION DATE: 26 JAN CHEM. PRESERVATIVE: HN03 COLUMN...... 13 14 ANALYTE..... 32 33 MO PPM..... MN SAMP # DESCRIPTION | 0.010 J CONC 0.0369 92113 GB/METPRO XREC 108.0 UNDER DUPE 0.0372 OID 00001002 00001002 HGA AUTH GB/METPRO 92114 CONC 0.0199 I 0.0033 J %REC OVER DUPL 00001002 010 00001002 HGA AUTH <0.010 BL#01 METHOD BLANK 01 CONC <0.004 **XREC** DUPL 00001002 010 00001002 HGA AUTH N/A BL#02 LCS 01 CONC 1.06 *REC 106.0 DUPL 010 00001002 00001002 HGA AUTH N/A BL#03 EXTERNAL QC 01 CONC N/A %REC DUPL 00001002 010 00001002 HGA AUTH Molybdenum Manganese MO

DATE: 09 FFR

	DESCRIPTION: GRE RESERVATIVE:	EN BAT	- OLIN-ESIES			OB NUMBER: OF SAMPLE:	BOS4PD-9	2310183	RECEIPT DATE: COMPLETION DATE:	20 DE 9 FE
	COLUMN	<i>-</i>	ï	√2	3:	4		5	Ĭ6.	
	ANALYTE		2	4	5	6.		7.	8	
	MG/KG		AS	CD	CR	CL	I	PB	HG	
SAMP #	DESCRIPTION									
3019	SAND 1 CELL 4	CONC	0.500	0.050	3.50	3.	60	8.10	Î 0.040	ı
		%REC	0.88	94.0	96.2	98	.2	92.0	99.2	i
		DUPL	0.500	0.050	3.60	3.	70	8.30	<0.040	i
		DID	01261032	01261032	0126103	2 01	261032	01261032	04651023	i.
				HGA AUTH	HGA AUT	H HG	A AUTH	HGA AUTH	•	•
3020	SAND 2 CELL 4	CONC.	9-400	0.030	2.60 ⁻	16 	.5	3.10	<0.040 	F
		DUPL			ŀ	1		1	1	Ė
		OID	01261032	01261032	0126103		261032	01261032	04651023	ĺ
				HGA AUTH	HGA AUT	f HG.	HTUA A	HGA AUTH		
3021	SILT/CLAY 1		5.10	1.41	77.6] 76	.8	104	3.44	ì
		ZREC		!	1 2 20	17 m	6:5		- L	- 1
		DUPL			1 44 9	> \$60° ¥	11.6	111111111111111111111111111111111111111		- 1
		OID	01261032	01261032	0126103		261032	01261032	04651023	- 1
				HGA AUTH	HGA AUT	i HG/	HTUA, A	HGA AUTH	•	
3022	SILT/CLAY 2	CONC XREC DUPL	5.00	1.30	82.3	73. 	.7	98.4	3.46	1
		OID	01261032	01261032	01261032	: 012	261032	01261032	04651023	i
				HGA AUTH	HGA AUTI	•	HTUA	HGA AUTH	, 0,05,025	,
L#01	METHOD BLANK 01	CONC %REC DUPL	<0.200	0.020	<0.100 	< 0.	100	<0.100	<0.040	1
		DID	01261032	01261032	04264076			[ļ.
		010	01201032		01261032	F	61032	01261032	04651023	1
				HGA AUTH	HGA AUTH	HGA	RTUA	HGA AUTH		
.#02	LCS 01	CONC	8.70	4.69	18.9] 20.	o .	9.70	0.0699	- 1
		%REC	87.2	93.8	94.5	100	.0	97.1	93.2	i
		DUPL		1	1	Ì		i	i	í
		010	01261032	01261032	01261032	012	61032	01261032	04651023	i
				HGA -AUTH	HGA AUTH	HĠA	AUTH	HGA AUTH	•	,
:	Arsenic				CD	Cadmium				
	Chromium				CU	Copper				
1	Lead				HG	Mercury				

******** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF

. . JOB FILE: 93019 DATE: 09 FEB JOB DESCRIPTION: GREEN BAY - OLIN-ESTES JOB NUMBER: 0054PD-92310183 RECEIPT DATE: 20 DEC 1 . CHEM. PRESERVATIVE: TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 9 FEB (COLUMN..... 1 2 3 ANALYTE..... 2 6 7 MG/KG..... AS CR CU PB НG SAMP # DESCRIPTION RC 8L#03 EXTERNAL QC 01 CONC 83.5 37.1 17.5 92.0 1180 0.0537 %REC DUPL OID 01261032 01261032 01261032 01261032 01261032 04651023 HGA AUTH HGA AUTH HGA AUTH HGA AUTH AS Arsenic CD Cadraium CR Chromium CU Copper PB Lead HG **Hercury**

IND ETTE- 03010

DATE: 09 FER 1

	DESCRIPTION: GREE RESERVATIVE:	EN BAY	- OLIN-ESTES		•	JOB TYPE OF	NUMBER SAMPLE			183	4.4	EIPT DATE: FION DATE:	20 DE
•	COLUMN		7	8		9		10		11		12	
	ANALYTE		9	10		.11		13		25		32	
	MG/KG		.NI	SE		AG		ZN		BA		MN	
SAMP #	DESCRIPTION												
93019	SAND T CELL 4	CONC	1.90	<0.200	١	0.300	1	15.2	ı	5.30	1	47.7	ŀ
		%REC	95.8	87.2	i	90.8	ĺ	87.0	i	106.6	i	117.0	Í
		DUPL	1.90	<0.200	i	0.200	į	15.5	i	5.50	i	48.7	i
		OID	01261032	01261032	í	01261032	į	01261032	ĺ	01261032	i	01261032	i
			HGA AUTH		•	HGA AUTH			·		·	HGA AUTH	
93020	SAND 2 CELL 4	CONC	2.50	<0.200	J	0.500	ţ	11.8	1	3.90	1	40.8	1
		XREC			- 1		. [1		- 1		-
		. DUPL		1			I				1		- 1
		OID	01261032	01261032		01261032	1	01261032	- 1	01261032	1	01261032	- 1
			HGA AUTH			HGA AUTH						HGA AUTH	
93021	SILT/CLAY 1		26.6	1.20	ı	0.799	1	3.11	Ì	102	1	325	1
		ZREC	5 at 1	1.	- 1	\$1. TO	1				1	1. 150 PM	- 1
			1971	144			1		1		. 1	4355	- 1
		CID	01261032	01261032	ŧ	01261032	Į.	01261032	ŧ	01261032	1	01261032	- 1
			HGA AUTH			HGA AUTH		116.12		1045		HGA AUTH	
93022	SILT/CLAY 2	CONC	27.6	1 1.00	- 1	1.00	f	294	ł	107	1	326	1
		ZREC		i	i		i		ì		i		i
		DUPL		j	i		Ì		Î		ì		i
		OID	01261032	01261032	i	01261032	İ	01261032	i	01261032	i	01261032	i
			HGA AUTH		,	HCA AUTH	1		'		•	HGA AUTH	
BL#01	METHOD BLANK 01	CONC	<0.100	<0.200	1	<0.100	Į.	<1.00	1	<0.100	1	<0.100	. 1
		%REC		Ä	i		i		Ĺ		i		i
		DUPL		i	Ĺ		i		i		i		i
		OID	01261032	01261032	i	01261032	i	01261032	ï	01261032	i	01261032	İ
			HGA AUTH	•		HGA AUTH	•		٠.		·	HGA AUTH	
BL#02	LCS 01	CONC	19.4	4.20	J	4.50	ţ	44.6	f	44.0	i	19.2	1
		%REC	97.0	83.6	i	90.6	1	69.2	Í	88.0	ĺ	96.0	i
		DUPL		1	ĺ		1		İ		Ì	•	ĺ
		OID	01261032	01261032	ij	01261032	İ	01261032	Ì	01261032	İ	01261032	ĺ
			HGA AUTH	•		HGA AUTH						HGA AUTH	
NI.	Nickel				;	SE.	Seleniu	mu					
AG	Silver				1	ZN	Zīnc						
BA	Barium				-	MN .	Mangane	se					

JOB FILE: 93019 JOB DESCRIPTION: GREEN BAY - OLIN-ESTES JOB NUMBER: 0054PD-92310183 RECEIPT DATE: 20 DEC 00 TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 9 FEB 01 CHEM. PRESERVATIVE: 10 12 COLUMN..... 7 32 11 13 25 ANALYTE..... 9 10 ВА MG/KG..... NI AG ZN ROW SAMP # DESCRIPTION 329 175 533 EXTERNAL QC 01 CONC 14.3 4.09 XREC DUPL 01261032 01261032 010 01261032 01261032 01261032 01261032 HGA AUTH HGA AUTH HGA AUTH Selenium Nickel SE Silver Zinc Manganese Barium

15t ·

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JOB FILE: 93019
                                                                                    DATE: 09 FEB C
RECEIPT DATE: 20 DEC C
  JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
                                                  JOB NUMBER: 0054PD-92310183
CHEM. PRESERVATIVE:
                                                TYPE OF SAMPLE: SEDIMENT
                                                                            COMPLETION DATE: 9 FEB C
          ANALYTE..... 33
          MG/KG..... MO
      DESCRIPTION
                                                                                              RC
      SAND 1 CELL 4 CONC <0.100
93019
                   ZREC 98.4
                  DUPL <0.100
                   GID 01261032
      SAND 2 CELL 4
                  CONC <0.100
                   %REC
                   DUPL
                   010 01261032
93021
     SILT/CLAY 1
                   CONC 0.799
                   XREC
                   DUPL
                   OID 01261032
93022
      SILT/CLAY 2
                   CONC 0.899
                   XREC
                   DUPL
                   DID 01261032
BL#01
      METHOD BLANK 01 CONC <0.100
                   ZREC
                   DUPL
                   010 01261032
                   CONC 5.00
BL#02
      LCS 01
                   %REC 100.2
                   DUPL
                   OID 01261032
       Malybdenum
                                                                                             7.5
```

DATE: 09 FEB (JOS FILE: 93019 JOB DESCRIPTION: GREEN BAY - OLIN-ESTES JOB NUMBER: Q054PD-92310183 RECEIPT DATE: 20 DEC C
LEM. PRESERVATIVE: TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 9 FEB C CHEM. PRESERVATIVE: COLUMN...... 13 ANALYTE..... 33 MG/KG..... HO RC SAMP # DESCRIPTION BL#03 EXTERNAL QC 01 CONC 0.698 XREC DUPL OID 01261032 MO Motybdenum

Mg 1-25-07

JOB FILE: 93023

DATE: 24 JAN

	SCRIPTION: GREE	N BAY	OLIN-ESTES			MBER: 0054PD-92 MPLE: SEDIMENT		RECEIPT DATE:	
	COLUMN		1 .*	2	3	. 4	5	6	
	ANALYTE			138	139	140	141	142	
	UG/KG			PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254	
SAMP #	DESCRIPTION								
3023	SAND 1 CELL 4	CONC	<10.3	<10.3	<10.3	365	<10.3	<10.3	1
		XREC	42.8	1	1	1	1	1	1
		DUPL		ĺ	ľ	1	1	1	.1
		OID	54821012	54921012	54821012	54821012	54821023	54821012	1
						bea of			
3024	SAND 2 CELL 4	CONC	≺10.3	1 <10.3	<10.3	523	<10.3	<10.3	1
,	१५ । सम्बद्धाः	%REC		ì	i	· j	100	1	- 1
		DUPL		1	1	1	1	1	
		010	54821012	54921012	54821012	54821012	54821023	54821012	.1
07025		CONTR	≺38.1	<38.1	l <38.1	1 6052	l <38.1	i <38.1	í
93025	SILT/CLAY 1	%REC	×30.1	1 *30.1	1 30.1	1 6032	1 3021	1 30.1	
	:	DUPL		-	i .		į.	i	1
			54821012	 -54921012	54821012	54821012	54821023	54821012	- 1
				•	•	MIS	****	• • • • • •	
3026	SILT/CLAY Z	CONC	<39.7	1 <39.7	1 <39.7	5803	<39.7	<39.7	1
		XREC		1	i	i	i	i	į.
		DUPL		i	i	i	ï	i	i
			54821012	54921012	54821012	54821012	54821023	54821012	İ
	idio e la martir de la			e in ma	f (a. ==	l'ii wa	1 :0 77	1 .0 77	7
BL#01	METHOD BLANK 01	200	<8.33	(8.33	<8.33	<8.33	<8.33	<8.33	- 1
		%REC DUPL		i	l.		1		- 1
			54821012	54921012	54821012	 54821012	1 54821023	.1 54821012	- 1
		OID	240E101E	1 34721012	1 sánciais	1 2700-1016	,	1 2	1
3L#02	LCS 01	CONC	0.73	N/A	N/A	A/K	N/A	N/A	Į
		XREC	87.2	1	1	1	1	ŀ	ľ
		DUPL		1	1		Ţ	1	
	-	010	54821012	54921012	54821012	54821012	54821023	54821012	I
non. 4042	non: 1044				prg_4004 ner	2.1721			
	PCB-1016				PCB-1221 PCB				
PCB-1232 PCB-1248	PCB-1232				PCB-1242 PCB				

	ESCRIPTION: GREE	N BAY	- OLIN-ESTES		JOB NUMBER: 0054PD-92310183 RECEIPT DATE: 20 DE: TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 24 JA
			_		9
	ANALYTE UG/XG			8 145 Tolxyl-s	146 DCLBP
SAMP #	DESCRIPTION				
93023	SAND 1 CELL 4	CONC XREC DUPL	14.1 103.6	79.4% 81.4	88.8% 84.1
		OID	54821012	54821012	54821012
93024	SAND 2 CELL 4	CONC	28.7	83.1%	90.1x
		DUPL	54821012	54821012	54821012
93025	SILT/CLAY 1	CONC %REC DUPL	319	78.3%	89.2%
		010	54821012 AM	54821012	j 54821012 j
93026	SILT/CLAY 2	CONC TREC DUPL	316	71.8X	84.9%
		010	54821012	54821012	54821012
BL#01	METHOD BLANK 01	CONC %REC DUPL	<8.33	86.2%	73.7%
		OID	54821012	54821012	54821012
BL#02	LCS 01	%REC	0.75 90.4	87.0%	74.9%
		OID	54821012	54821012	54821012
PCB-1260 DCLBP	PC8-1260 Decachlorobíphe	enyl (Su	rrogate (40-1	40 WS>>	TclXYL-S 2,4,5,6-Tetrachloro-m-xylene(Surrogate(40-140 WS

Jobfile Number: 93023
Project: GREEN BAY - OLIN-ESTES
Account Number: 0054PD-92310183
Date Received: 20 DEC 00

			Analyte		% SDUPL	RPD	OID
			PCB-1016		60.4	34.1	54821012
93023	93023	143	PCB-1260	103.6	100.4	3.1	54821012
93023	93023	145	TclXYL-S	81.4	88.8	8.7	54821012
93023	93023	146	DCLBP	84.1	87.5	4.0	54821012

Page 1

JOS FILE: 93027 DATE: 16 JAI JOB DESCRIPTION: GREEN BAY - DLIN-ESTES JOB NUMBER: 0054PD-92310183 RECEIPT DATE: 20 DEC CHEM. PRESERVATIVE: TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 16 JAN COLUMN...... 1 ANALYTE..... 86 100 104 MG/KG.... TOC O&G TRPH SAMP # DESCRIPTION 93027 SAND 1 CELL 4 CONC 1610 | 56 19 J ZREC. DUPL 1980 OID 60041010 55991014 55991014 93028 SAND 2 CELL 4 CONC 1260 121 %REC 87.6 88.8 DUPL 55991014 DID 60041010 55991014 93029 SILT/CLAY 1 CONC 14200 370 200 DUPL OID 60041010 55991014 55991014 93030 SILT/CLAY 2 CONC 28000 340 XREC DUPL OID 60041010 55991014 55991014 BL#01 METHOD BLANK 01 CONC <100 1 <35 <35 XREC DUPL 55991014 OID 60041010 55991014 BL#02 LCS 01 CONC 11500 883 883 %REC 115.0 88.6 88.6 DUPL OID 60041010 ' 55991014 55991014 TOC Total Organic Carbon 086 Oil and Grease TRPH Total Recoverable Petroleum Mydrocarbons

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES JOB NUMBER: 0054PD-92310183 RECEIPT DATE: 20 DE CHEM. PRESERVATIVE: TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 16 JA COLUMN..... 1 100 104 MG/KG..... TOC D&G TRPH DESCRIPTION BL#03 EXTERNAL QC 01 CONC 21750 %REC 96.7 DUPL 010 60041010 55991014 55991014 TOC Total Organic Carbon Oil and Grease TRPH Total Recoverable Petroleum Hydrocarbons

Jobfile Number: 93027
Project: GREEN BAY - OLIN-ESTES
Account Number: 0054PD-92310183
Date Received: 20 DEC 00

	_		Analyte		% SDUPL	RPD	OID
93027	93028	100		87.6 88.8	89.2 89.0	1.8	55991014 55991014

Page 1

.	RESERVATIVE:		- OLIN-ESTES	2		IUMBER: 00549D-9 SAMPLE: SEDIMENT		RECEIPT DATE: COMPLETION DATE:	16 MÄI 7 JUI
16-121	ANALYTE.		1	2	3	4	5	6	
וטן טיי	MG/KG		2	4	5 ;	6	7	8	
G,	way xq		A3	ĆD	CR	cu	PB	ЯG	
SAMP #	DESCRIPTION.								
94937	CLAY 1 CELL 4	CONC	6.90	2.29	1 140	l sen	1.42.		
	3/16/01	ZREC		99.6	79.6	118	191	3.30	1
		DUPL		2.32	140	79.6	110.0	ŀ	- 1
		010	01261137	01261137	01261137	118	195		1
	•			HGA AUTH	HGA AUTH	01261137	01261137	04651102	- 1
				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	HOW WOLD	HGA AUTH	HGA AUTH		
94938	CLAY 2 CELL 4	CONC	6.79	1 2.28	128	1 108	1		
	3/16/01	XREC		1	1 720	1 100	196	2.40	Ì
		DUPL		į.	ŀ	1	<u> </u>	!	į
		010	01261137	01261137	01261137	01261137	1 0424472		1
				HGA AUTH	HGA AUTH	HGA AUTH	01261137	04651102	Į
				4 14 17		JAMA ADIO	HGA AUTH		
94939	SILT CELL 4	CONC	2.00	0.320	1 15.1	21.2	242	102/2	
	3/16/01	%REC		1	1 (1	1 575	0.363	!
		DUPL		.1.	İ	i i		0.371	ļ
		OID	01261137	01261137	01261137	01261137	01261137	04651102	- 1
				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH	34031,02	'
BL#01	METHOD BLANK 01	envie		1					
	METHOD BENKE OF	CONC	<0.200	<0.020	<0.100	<0.100	<0.100	<0.0100	- 1
		DUPL		1	Ŋ	1		j	- i.
		OID	01261137	1 04044400		1	1	i	i
	•	010	01201137	01261137	01261137	01261137	01261137	04651102	i
				HGA AUTH	HGA AUTH	HGA AUTH	NGA AUTH		'
BL#02	LCS 01	CONC	10.2	1 51.4	19.1	lian o	i		
			102.0	102_8	95.5	18.9	9.60	0.0992	- 1
		DUPL		1	1 73.3	94.5	96.3	99.2	
		OID	01261137	01261137	01261137	01261137	1 04014470		.1
				HGA AUTH	HGA AUTH	HGA AUTH	01261137	04651102	.1
						nax xorn	HGA AUTH		
BL#03	EXTERNAL OC 01	CONC.	96.3	40.2	22.1	167	1090	Lotorrá	12
		ZREC		i	1	1	1 1090	0.0650	
		DUPL		i	1	i	1	108.3	
		DID	01261137	01261137	01261137	01261137	01261137	06654400	1
				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH	04651102	ı
							ingu sain		
S R	Arsenic				CD Cade	nium			
В	Chromium Lead				CU Copp	er			

	DESCRIPTION: GRE	EN BAY	- OLIN-ESTES		JOB N	UMBER: 005490-9 AMPLE: SEDIMENT	2310183	RECEIPT DATE:	16 MA
					TIPE OF 3	AMPLE: SEDIMENT		COMPLETION DATE:	7 Ju
	COLUMN ANALYTE		7 9	8	9	10	11	12	
	MG/KG			10 SE	11 AG	13 2N	24 AL	25 Ba	
SAMP #	DESCRIPTION								
94937	CLAY 1 CELL 4	conc	70 7	1 4 70	Lara	1			
74731	3/16/01		38.7 87.4	1.30	1.50	689	26500	184	- 1
	37 10701		38.7	88.2 1.30	98.2	79.4	90.8	110.4	
		OID	01261137	01261137	1.60 01261137	692	26400	186	!
			HGA AUTH	1 61201131	HGA AUTH	01261137	01231154	01261137	1
94938	CLAY 2 CELL 4	CONC	35.0	1.30	1.60	672	26400	182	1
	3/16/01	XREC		į	į	į	į	1	i
		DUPL	01261137	 01261137	1 043/4427	212/4477			
		OID	HGA AUTH	1 01251137	01261137 HGA AUTH	01261137	01231154	01261137	l
94939	SILT CELL 4	CONC	7.00	0.300	0.400	320	1940	27.5	1
	3/16/01	XREC			į s	į	i	1	i
		DUPL 010	01261137	1			!	ļ	İ
		015	HGA AUTH	01261137	01261137 HGA AUTH	01261137	01231154	01261137	.
BL#01	METHOD BLANK 01	CONC	<0.100	<0.200	<0.100	1.20	<2.00	<0.100	
		XREC		!	· į	į	i		i
		DUPL	01261137	 01261137	1 01241177	1 012/1177			[
		0.0	HGA AUTH	1 01201131	01261137 HGA AUTH	01261137	01231154	01261137	i
BL#02	LCS 01	CONC	18.3	4.30	4.80	45.7	N/A	1 57 /	
		XREC	91.5	86.8	96.0	91.4	1 772	53.4 106.8	- 1
		DUPL		i		1	1	1 100.0	1
		OID	01261137	01261137	01261137	01261137	01231154	01261137	i
			HGA AUTH		HGA AUTH		,	,	'
BL#03	EXTERNAL QC 01	CONC	16.4	1.60	4.79	j 331	33000	216	1
		%REC		1	İ	İ	i	i	j
		DUPL	*****		1		- I	1	I
		DID	01261137 HGA AUTH	01261137	01261137 HGA AUTH	01261137	01231154	01261137	ı
NI	Nickel				SE Sel	enium			
AG	Silver				ZN Zin				
AL	Aluminum				BA Bar	îum			

JOB -	DESCRIPTION: GR		- OLIN FORES		**				
HEM. P	RESERVATIVE:	CEN BAJ	· OLIN-ESTES			JOB NUMBER: TYPE OF SAMPLE:	005490-92310183 SEDIMENT	RECEIPT DATE: COMPLETION DATE:	16 H/
	COLUMN			14		15			
	ANALYTE,			32.		33			
	MG/KG		FE	MN		MO			
AMP #	DESCRIPTION								
4937	CLAY 1 CELL 4	CONC	30700	330		1.00			
	3/16/01		93.6	90.6	- 4	114.8		*	
		DUPL		335	- 4	1.00			
		OID	01231154	01261137	- 4	01261137			
				HGA AUTH	'	nisories.			
938	CLAY 2 CELL 4	CONC	30500	[.312	,	i.o. 1			
	3/16/01	TREC	-,	1	l i	1.00			
		DUPL				Į.			
		OID	01231154	01261137	-	01261137			
				HGA AUTH	•	•			
939	SILT CELL 4	CONC	10500	1 174	i	0.500			
	3/16/01	XREC		i	i	1			
		DUPL		i	- i				
		OID	01231154	01261137	i	01261137			
				HGA AUTH	,	-1207101			
#01	METHOD BLANK 01	CONC	<2.00	<0.100	ı	<0.100 I			
		%REC		1	N.	-5,100			
		DUPL	•	i	- 1	1			
		010	01231154	01261137	- 1	01261137			
				HGA AUTH	1	1		*	
# 02	ECS 01	CONC	112	į 18.7	1.	ı/Ä [
		XREC	112.0	93.5	1,	****.			
		DUPL		1	1	1			
		OID	01231154.	01261137	4.1	11261137			
				HGA AUTH	' '	. mar jiji			
03	EXTERNAL OC 01	CONC	42100	503		. 000			,,
		ZREC		293	i c	999			
		DUPL) 	L	j			
			01231154	01261137	- -	40:4477			
				HGA AUTH	Ιē	1261137	-		
	Iron								

CHEM. P	RESERVATIVE:				TYPE OF SA	MPLE: SECIMENT		COMPLETION DATE:	25 AP
	COLUMN ANALYTE UG/KG		1 137 PCB-1016	2 138 PCB-1221	3 139 PCB-1232	4 140 PCB-1242	5 141 PCB-1248	6 142 PCB-1254	
SAMP #	DESCRIPTION								
94940	3/16/01	CONC KREC CUPL	<40.5	<40.5	<40.5 	6860 	<40.5 	<40.5 	1
	C	! סוכ	54831099	54831099	54831099	54831099	54831099	54831099	1
94941	3/16/01	CONC .	<40.5	<40.5	<40.5 	8330	<40.5	<40.5	
		OUPL OID !	54831099	54831099	54831099	54831099	54831099	54831099	
94942	3/16/01 2	CONC .	<11.2	<11.2 	<11.2 	1950	<11.2 	<11.2 	
		OUPL	54831099	54831099	 54831099	54831099	54831099	54831099	1
BL#01	2	ONC	<8.3	<8.3	<8.3 	<8.3	<8.3 	<8.3	!
		OUPL SID 5	54831099	54831099	54831099	54831099	54831099	 54831099	
BL#02		ONC T		N/A 	N/A 	N/A 	N/A	N/A 	
			86.0 54831099	54831099	54831099	54831099	54831099	54831099	
PCB-1232	PCB-1016 PCB-1232 PCB-1248				PCB-1221 PCB PCB-1242 PCB PCB-1254 PCB	- 1242			

	DESCRIPTION: GRE RESERVATIVE:	EN BAY	- OLIN-ESTES		JOB NUMBER TYPE OF SAMPLE		RECEIPT DATE:	16 MAR 25 APR
	COLÚMN		7	8	9			
	ANALYTE		143	145	146			
	UG/KG		PCB-1260	TCIXYL-S	DCLBP			
AMP #	DESCRIPTION							
4940	CLAY 1 CELL 4	CONC	240	114%	130%			
	3/16/01	XREC.		İ	i i			
		DUPL		j	i i	*		
		OID	54831099	54831099	54831099			
4941	CLAY 2 CELL 4	CONC	236	116%	115%			
	3/16/01	XREC		i	i			
		DUPL		ì	i i			
		OID	54831099	54831099	54831099			
4942	SILT CELL 4	CONC	18.2	95.2%	117%			
	3/16/01	%REC			1			
		DUPL			i j			
		OID	54831099	54831099	54831099			
.#01	METHOD BLANK D1	CONC	<8.3	109%	127%			
		%REC		T	1 (
		DUPL						
		010	54831099	54831099	54831099			
#02	LCS O1	CONC	75.3	99.1%	114%		•	
		%REC	90.4	104	113			
		DUPL	81.3	1	1			
		-01D	54831099	54831099	54831099			

Decachlorobiphenyl (Surragate (40-140 WS))

DCLBP

Jobfile Number: 94940

Project: GREEN BAY - OLIN-ESTES
Account Number: 00549D-92310183
Date Received: 16 MAR 01

	-		Analyte			-	SDUPL	RPD	OID
94940	BL#02	137	PCB-1016 PCB-1260	93	3.2	ı	 03.2 7.6	10.2	54831099 54831099

Page 1

JOB FILE: 94943 JOB DESCRIPTION: GREEN BAY - CLIN-ESTES JOB NUMBER: 005490-92310183 RECEIPT DATE: 16 MAR D CHEM. PRESERVATIVE: TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 30 APR 0 COLUMN..... 1 ANALYTE..... 86 100 104 900 MG/KG..... TOC 0&G TRPH O&G-RR DESCRIPTION RC 94943 CLAY 1 CELL 4 CONC 81000 540 230 #1 390 3/16/01 %REC DUPL 82500 55991107 010 60041117 55991110 55991110 94944 CLAY 2 CELL 4 CONC 76800 1:460 130 #1 250 3/16/01 XREC. DUPL OID 60041117 55991107 55991110 55991110 94945 SILT CELL 4 CONC 9180 200 #1 110 3/16/01 %REC DUPL OID 60041117 55991107 55991110 55991110 METHOD BLANK 01 CONC <100 <35 1 <35 #1 <35 %REC 60041117 55991107 55991110 010 55991110 BL#02 LCS 01 CONC 11200 910 927 #1 921 %REC 112.0 88.9 90.5 1 89.9 DUPL OID 60041117 55991107 55991110 55991110 BL#03 EXTERNAL QC 01 CONC N/A N/A N/A N/A %REC DUPL 60041117 OID 1 55991107 55991110 55991110 TOC Total Organic Carbon 086 Oil and Grease TRPH Total Recoverable Petroleum Hydrocarbons O&G-RR Oil & Grease (Repeat) FOOTNOTES: #1 Repeat value, extracts 4/18/01 - See Corrective Action Form.

Jobfile Number: 94943

Project: GREEN BAY - OLIN-ESTES
Account Number: 00549D-92310183.
Date Received: 16 MAR 01

Job#	Sample	Tst	Analyte	%	REC	% SDUPL	RPD	OID
							· 	
94943	BL#02	104	TRPH	91	0.5	87.4	3.5	55991110

Page 1

nalysis:	O&G, TRPH		Date:	23-April-01
nalyst:	Harrison		Instrument:	
roblem:		s. TRPH numbers h		owed contamination in mbers. Contamination
ample Nur	nber(s) Affected:	94943-94945		
Recommen	ded Corrective Action:	Pre-clean silica ge	el and re-extract san	nples
		N)		
Corrective A	Action Taken By Analyst:		ted 4/18 which was ilica gel pre-cleane	
Comments:	No contamination w lower than original v between extractions TRPH data ONLY is	values. Possibly so . Both original and	me analyte loss due	
Date Correct Reviewed b	otive Action Taken:	18-April-01		

REPORT DOCUMENTATION PAGE

Form Approved OMB No. 0704-0188

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Disposal Facility, Green Bay, Wi		nonstration, Bayport Commed	5b. GRANT NUMBER
,			
			5c. PROGRAM ELEMENT NUMBER
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Trudy I Olin-Estes Susan E Bai	ilev David	W. Bowman, Dennis L. Brandon	
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13. SUPPLEMENTARY NOTES

14. ABSTRACT

A mobile, self-contained, maximum density separator (MDS) was tested in a 1-day demonstration conducted at the Bayport Confined Disposal Facility in Green Bay, WI. The objective of the demonstration was to evaluate the ability of the equipment to separate a sand fraction meeting a given specification with respect to fines content and PCBs concentration. Additionally, two different methods of excavating and preparing the material for processing with the MDS were tested. One phase of an ongoing effort in evaluating the feasibility of soil washing techniques for volume reduction of dredged material, the field demonstration was preceded by bench-scale fractionation studies. These studies were conducted to determine the magnitude and distribution of contaminants in the material to be processed, and expected contaminant levels in the product streams. The demonstration was the culmination of research into the implementation and interpretation of fractionation studies; type, availability, and suitability of off-the-shelf equipment for sediment processing; and site visits to view different physical separation plant configurations. The results of these cumulative efforts will ultimately be incorporated into summary guidance documents.

15. SUBJECT TERMS		Hydrocyclone		s	Soil washing
Dredged material M		num density separato	r Sedi	ments	Volume reduction
Fractionation studies MDS		Soil separation			
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